Memoirs of the Museum of Comparative Zoölogy
AT HARVARD COLLEGE.
Vol. XXXV. No. 3.

REPORTS ON THE SCIENTIFIC RESULTS OF THE EXPEDITION TO THE EASTERN TROPICAL PACIFIC, IN CHARGE OF ALEXANDER AGASSIZ, BY THE U. S. FISH COMMISSION STEAMER "ALBATROSS," FROM OCTOBER, 1904, to MARCH, 1905, LIEUT. COMMANDER L. M. GARRETT, U. S. N., COMMANDING.

XXV.

THE SHORE FISHES.

By WILLIAM C. KENDALL and LEWIS RADCLIFFE.

WITH EIGHT PLATES.

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CAMBRIDGE, U. S. A.:
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EASTERN TROPICAL PACIFIC.

The following publications of the Museum contain Reports on the Dredging operations, in charge of Alexander Agassiz, of the U. S. Fish Commission Steamer "Albatross," during 1904 and 1905, Lieut. Commander L. M. Garrett, U. S. N., Commanding.

I. A. Agassiz. Three letters to the Hon. G. M. Bowers on the Cruise in the Eastern Tropical Pacific. Bull. M. C. Z., April, 1905. Vol. 46, no. 4. 22 pp.

II. H. Richardson. Description of a new genus of isopods, typical of a peculiar family. Bull. M. C. Z., July, 1905. Vol. 46, no. 6. 4 pp. 1 plate.

III. C. A. Kofoid. Craspedotella, a new genus of the Cystoflagellata, an example of convergence. Bull. M. C. Z., September, 1905. Vol. 46, no. 9. 5 pp. 1 plate.

IV. W. E. Ritter. Octacnemus. Bull. M. C. Z., January, 1906. Vol. 46, no. 13. 22 pp. 3 plates.

V. A. Agassiz. General report of the Expedition. Mem. M. C. Z., January, 1906. Vol. 33. 90 pp. 96 plates.

VI. T. W. Vaughan. Madreporaria. Bull. M. C. Z., August, 1906. Vol. 50, no. 3. 14 pp. 10 plates.

VII. C. R. Eastman. Sharks' teeth and cetacean bones. Bull. M. C. Z., November, 1906. Vol. 50, no. 4. 26 pp. 4 plates.

VIII. S. F. Clarke. The hydroids. Mem. M. C. Z., February, 1907. Vol. 35, no. 1. 20 pp. 15 plates.

IX. C. A. Kofoid. New species of Dinoflagellates. Bull. M. C. Z., February, 1907. Vol. 50, no. 6. 48 pp. 18 plates.

X. M. J. Rathbun. The Brachyura. Mem. M. C. Z., August, 1907. Vol. 35, no. 2. 54 pp. 9 plates.

XI. F. E. Schulze. Die Xenophyophoren. Bull. M. C. Z., November, 1907. Vol. 51, no. 6. 22 pp. 1 plate.

XII. S. Garman. The Reptiles of Easter Island. Bull. M. C. Z., June, 1908. Vol. 52, no. 1. 14 pp. 1 plate.

XIII. E. C. Starks. Atelaxia. Bull. M. C. Z., July, 1908. Vol. 52, no. 2. 8 pp. 5 plates.

XIV. W. H. Dall. The Mollusca and Brachiopoda. Bull. M. C. Z., October, 1908. Vol. 43, no. 6. 285 pp. 22 plates.

XV. J. Thiele. Bathysciadium, Lepetella, und Addisonia, Bull. M. C. Z., October, 1908. Vol. 52, no. 5. 11 pp. 2 plates.

XVI. H. B. Bigelow. The Medusae. Mem. M. C. Z., February, 1909. Vol. 37. 243 pp. 48 plates.

XVII. J. Murray and G. V. Lee. The depth and marine deposits of the Pacific. Mem. M. C. Z., June, 1909, Vol. 38, no. 1. 170 pp. 5 plates, 3 maps.

XVIII. R. Woltereck. Amphipoda. Bull. M. C. Z., June, 1909. Vol. 52, no. 9. 26 pp. 8 plates.

XIX. L. J. Cole. Pycnogonida. Bull. M. C. Z., August, 1909. Vol. 52, no. 11. 10 pp. 3 plates.

XX. C. A. Kofoid. Mutations in Ceratium. Bull. M. C. Z., September, 1909. Vol. 52, no. 13. 48 pp. 4 plates.

XXI. R. von Ledenfeld. The siliceous Sponges. Mem. M. C. Z., August, September, 1910. Vol. 41. 323 pp. 56 plates.

XXII. C. A. Kofoid and J. R. Michener. New genera and species of Dinoflagellates. Bull. M. C. Z., August, 1911. Vol. 54, no. 7. 38 pp.

XXIII. H. B. Bigelow. The Siphonophores. Mem. M. C. Z., December, 1911. Vol. 38, no. 2. 232 pp. 32 plates.

XXIV. C. A. Kofoid and E. J. Rigden. A peculiar form of Schizogony in Gonyaulax. Bull. M. C. Z., February, 1912. Vol. 54, no. 10. 16 pp. 2 plates.

XXV. W. C. Kendall and L. Radcliffe. The shore Fishes. Mem. M. C. Z., April, 1912. 98 pp. 8 plates.

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THE SHORE FISHES.

INTRODUCTION.

The fishes which form the basis for the present report were collected from the following localities: — Acapulco, Mexico; Perico, Naos, and Toboguilla islands in Panama Bay; the shores and markets of Panama City; the Galapagos Islands (principally at Wreck Bay, Chatham Island); in Cook and La Perouse bays and along shores of Easter Island; Manga Reva (principally in Port Rikitea and on the outer reef); and from dredge hauls taken along the coast of southern California, Mexico, Central America, Peru, and the open seas *en route* to the above mentioned island groups which yielded a few pelagic forms.

As would be expected from places so widely separated the faunas are more or less distinct. An examination of the list of species as represented by the collection reveals the following points: —

1. The fauna of the Galapagos is quite similar to that of Mexico and Central America.

2. The fauna of Easter Island (represented by twenty-two species not taken at any other point visited) seems to be different from that of its nearest neighbor, Manga Reva (Paumotus) and appears closest to that of Norfolk Island.

3. With one exception (*Mapo soporator*) none of the forty-two species from Manga Reva was taken at any other point visited. Its fauna is naturally similar to that of the other islands of the Paumotu Archipelago.

Unless otherwise stated, proportional measurements of length of head and depth of body are expressed in terms of length without the caudal, and the others in terms of length of head measured from tip of snout to posterior edge of opercle. In the scale counts in longitudinal series, the total number of transverse rows above the lateral line has been counted and only the fully developed scales at the base of the caudal included.

In this collection there are representatives of fifty-five families and two hundred and twenty-seven species, of which the following are described as new:—*Raja aguja*, *Kuhlia nutabunda*, *Girella nebulosa*, *Eques fuscovittatus*, *Gillelus rubellulus*, and *Enneapterygius corallicola*.

The description of a new blenny, *Alticus margaritatus* from Pago Pago, Samoa is also included in the present report.

Specimens representing one hundred and fifty species have been sent to the Museum of Comparative Zoölogy, all others including the types of the new species, to the U. S. National Museum.

The illustrations are from drawings by Miss Violet Dandridge.

RAJIDAE.

Raja aguja, sp. nov.

Plate 1, figs. 1–2.

Type, No. 65641, U. S. N. M. (field No. 3161), a female $18\frac{7}{8}$ inches long from Station 4653, near Aguja Point, Peru.

Cotype, No. 1364, M. C. Z. (field No. 3162), a male $11\frac{1}{5}$ inches long, from same place.

The greatest width of disc in its posterior half; angle of snout obtuse; front margin of pectoral sinuous, convex opposite eye, concave posteriorly; pectoral rounded posteriorly; ventral deeply notched; caudal fin small, distinct; a narrow keel on posterior part of tail, becoming a mere ridge anteriorly; anterior margin of spiracles, nasal and gill flaps fringed; a wide-set row of small concealed spines on the median dorsal line; thirty-three low sharp spines along median dorsal line of tail, beginning somewhat in advance of base of pectoral and extending to first dorsal; a single spine between first and second dorsal; basal half of pectoral without spinules, a very few scattered ones on posterior outer half; an elongate wide-set patch along the anterior margin of pectoral; a few on snout, these more numerous between the eyes; a few on shoulder; tip of snout prickly; dorsal surface of tail with numerous sharp spinules; anterior margin of pectoral, snout, and ventral surface thickly covered with minute prickles; snout as far back as nostrils, around nostrils, and corner of mouth posteriorly for a short distance, with less numerous finer prickles; region between upper jaw and nostrils without prickles; a few minute prickles along base of pectoral; a few on posterior part of breast; a small patch on posterior margin of each gill-slit; none on sides of abdomen except anteriorly at the sides; no

prickles or spines on ventral portion of tail; posteriorly a broad patch of prickles along middle of pectoral.

Color in alcohol: — dorsal surface purplish brown; a large gray spot at posterior base of pectoral; smaller and fainter spots scattered over dorsal surface, also a row around margin of pectoral; ventral surface slaty; mouth, nasal flaps, and gill-flaps pale.

In the cotype the anterior border of the disc is nearly straight, in other respects agreeing with the larger specimen. The dorsal surface is covered with prickles, these are thickest on tail, middle line of back, between the eyes, in front of the eyes, and on the anterior margin of pectoral; fewer in the places where there were more in the larger specimen; no prickles on ventral surface of body or tail; a slight fold along ventral margins of tail.

Color in alcohol; dorsal surface purplish brown, scarcely any pale spots showing; ventral surface slaty gray; margin of mouth, nasal flaps, gill-flaps, tips of ventrals, and claspers pale.

Measurements of the dorsal surface.

	No. 65641 U. S. N. M.	No. 1364 M. C. Z.
Total length	480 mm.	286 mm.
Tip of snout to posterior base of pectoral	230	137
Width of disc	340	185
Distance from tip of snout to front of eye	67	41
Distance between eyes	20	15
Longitudinal diameter of eyes	16	13
Length of spiracle	15	8
Height of first dorsal	19	10
Base of dorsal	16	7
Height of second dorsal	15	10
Base of second dorsal	15	8
Distance between first and second dorsal	9	5
Posterior end of second dorsal to tip of caudal	16	15
Distance between posterior bases of pectoral	46	24
Spines along median dorsal line of tail	33	24
Spines between first and second dorsal	1	1

Measurements of the ventral surface.

	No. 65641 U. S. N. M.	No. 1364 M. C. Z.
Distance from tip of snout to vent	240 mm.	136 mm.
Distance from posterior part of vent to tip of caudal	232	144
Length of anterior lobe on anterior margin of ventral	52	34
Distance between anterior base of lobes of ventral	47	31
Distance from tip of snout to central margin of upper jaw	70	45
Width of mouth	41	23
Rows of teeth in upper jaw	30	30
Rows of teeth in lower jaw	28	28

DASYATIDAE.

Urolophus halleri Cooper.

Proc. Cal. Acad. Sci., 1863, **3**, p. 95. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 80.

A single example, a male, No. 3335, 12 inches long from Acapulco.

Snout $\frac{1}{5}$ disc; spinous portion of tail longer than snout to ventrals; about eighteen retrorse barbs, these more widely separated than in *U. aspidurus*; eyes about as large as spiracles; caudal blunt and rounded.

Urolophus aspidurus Jordan & Gilbert.

Bull. U. S. Fish Comm., 1881, **1**, p. 307. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 81.

One specimen, No. 3137, $11\frac{1}{4}$ inches long from Bay of Panama.

Urolophus rogersi Jordan & Starks.

Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 388.

A single individual, No. 3376, $11\frac{1}{4}$ inches long from Acapulco. Distance from tip of snout to a line across back from posterior base of pectorals 1.22 in width of disc; tail, measured from vent 1.17 in width of disc; distance from vent to anterior insertion of caudal spine 2.5 in width of disc; distance from anterior insertion of caudal spine 2.30 in width of disc; length of spine 1.33 in distance from posterior edge of eye to tip of snout; twelve retrorse barbs on side of caudal spine; caudal rounded; tubercles with a stellate base; five enlarged tubercles on median line of back in humeral region; three smaller ones near the base of tail; scattered small prickles on the interorbital space, along side of back, posterior margin of pectorals, tip of snout, becoming numerous on the tail; upper lip fimbriated.

CLUPEIDAE.

Sardinella thrissina (Jordan & Gilbert).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 430.
Clupea thrissina Jordan & Gilbert, Proc. U. S. Nat. Mus., 1882, **5**, p. 353.

Twelve specimens, $1\frac{13}{16}$ to $2\frac{5}{8}$ inches long from Acapulco. M. C. Z. 29430 (3 specimens).

Four specimens $1\frac{3}{8}$ to $1\frac{7}{8}$ inches long from Toboguilla Island, October 28, 1904.

In these individuals the edges of the scales are crenate, scales 17+12 or 13; dorsal II, 15; anal II, 14 or 15.

Opisthopterus dovii (GÜNTHER).

JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 437.
Pristigaster dovii GÜNTHER, Cat., 1868, **7**, p. 461.

Two specimens $8\frac{1}{8}$ to $8\frac{5}{8}$ inches long from Panama Bay. M. C. Z. 29708 (1 specimen).

ENGRAULIDAE.

Anchovia opercularis (JORDAN & GILBERT).

GILBERT & STARKS, Mem. Cal. Acad. Sci., 1904, **4**, p. 42.
Stolephorus opercularis JORDAN & GILBERT, Proc. U. S. Nat. Mus., 1881, **4**, p. 275.

Several specimens $\frac{3}{4}$ to $1\frac{5}{8}$ inches long from Station No. 1, beach, Panama, with other fishes in the stomach of a Lutianus. M. C. Z. 29585 (4 specimens).

These specimens are in bad condition but those that can be made out at all are pretty certainly this species. One specimen shows nineteen anal rays, dorsal cannot be counted. Another had fourteen dorsal and nineteen anal rays; maxillary just reaching the joint of mandible; scales entirely wanting and only the faintest indication of a narrow silvery lateral stripe.

Anchovia macrolepidota (KNER & STEINDACHNER).

JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 449.
Engraulis macrolepidota KNER & STEINDACHNER, Abhandl. Bayer. Akad. Wiss., 1864, **10**, p. 21, pl. 3, fig. 2.

One specimen 7 inches long from Panama Bay.

Anchovia ischana (JORDAN & GILBERT).

GILBERT & STARKS, Mem. Cal. Acad. Sci., 1904, **4**, p. 42.
Stolephorus ischanus JORDAN & GILBERT, Proc. U. S. Nat. Mus., 1882, **4**, p. 340.

Twenty-five specimens $1\frac{1}{4}$ to $2\frac{1}{16}$ inches long from Acapulco, March 2, 1905. M. C. Z. 29437 (10 specimens).

OPHICHTHYIDAE.

Quassiremus evionthas (JORDAN & BOLLMAN).

JORDAN & DAVIS, Rept. U. S. Fish. Comm. for 1888, 1892, p. 623, pl. 77.
Ophichthus evionthas JORDAN & BOLLMAN, Proc. U. S. Nat. Mus., 1890, **12**, p. 154.

One example, No. 3255, $19\frac{1}{2}$ inches long from Wreck Bay, Chatham Island.

MURAENIDAE.

Muraena clepsydra GILBERT.

Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2805. (*Muraena melanotis* GÜNTHER in part).

One specimen, No. 3118, 22 inches long from Panama Bay.

Muraena lentiginosa JENYNS.

Zool. Voy. Beagle. Fish, 1842, pt. 4, p. 143.

A single example No. 3374, 17 inches long from Acapulco.

Teeth uniserial in both jaws; one large, fang-like tooth on vomer anteriorly; a single row of small, sharp teeth on palate. Both Bleeker and Günther state that the teeth are biserial or uniserial according to the age of the individual, and that the teeth on the palate are sometimes entirely lost with age.

Anterior and posterior nasal tubes of our specimen are moderate, posterior slightly the longer; eye 2.16 in snout; snout 1.92 in gape.

General color in alcohol:—dark yellowish brown, covered with yellowish spots of various sizes, both body and fins thus colored, largest spots about $\frac{2}{3}$ diameter of eye, all surrounded by a ring of black.

Gymnothorax dovii (GÜNTHER).

SNODGRASS & HELLER, Proc. Wash. Acad. Sci., 1905, **6**, p. 348.
Muraena dovii GÜNTHER, Cat., 1870, **8**, p. 103.

Specimens, No. 3170, $25\frac{1}{2}$, 3171, 16, 3200, M. C. Z. 29663, 15, 3201, M. C. Z. 29640, 17 inches long from Cook Bay, Easter Island.

Teeth in No. 3170 are in a single series on sides of both jaws; same on vomer; in front of this row on vomer is a single long fang-like tooth, there being quite a space between the tooth and the end of the row; eye 2.5 in snout; snout 2 in gape.

General color dark brown; the entire specimen thickly covered with small yellow spots interspersed with larger black ones, giving it a speckled appearance; anal with a narrow margin of yellow; dorsal margin yellow only where the spots touch the margin.

In No. 3171 the teeth are biserial on the sides of upper jaw, and uniserial in lower jaw; anteriorly in the upper jaw there are two transverse rows of three fang-like teeth each; eye 1.83 in snout; snout 2.36 in gape.

General color similar to above, except posteriorly. The spots on body and fins are somewhat larger; no distinct pale margins to the fins; on the belly the yellow spots are finer and more or less coalescent, giving a rivulated appearance.

In 3200, M. C. Z. 29663, the teeth are similar to those in No. 3171; eye 2 in snout; snout 2.22 in gape.

Coloration similar to No. 3171, except that the spots are distinct on the belly and do not give the rivulated appearances; on the fins, the spots are a

little more regularly rounded; the larger of the black spots are a little more than half the size of eye.

In No. 3201, M. C. Z. 29640, the teeth are exactly as in the last specimen; eye 2.09 in snout; snout 2.17 in gape.

General color, dark chocolate brown, thickly covered with small pale spots anteriorly, and sparsely posteriorly; numerous black spots, many as large as eye on body, arranged in more or less regular transverse rows at least anteriorly.

Uropterygius necturus (JORDAN & GILBERT).

JORDAN & EVERMANN, Bull. **47**, U. S. Nat. Mus., 1906, pt. 1, p. 404.
Gymnomuraena necturus JORDAN & GILBERT, Proc. U. S. Nat. Mus., 1882, **5**, p. 356.

A specimen, No. 3377, 16 inches long from Acapulco.

Descriptions of this species state that it has no posterior nasal rim or tube. The specimen studied, however, has a prominent posterior nasal tube. All the specimens entering into these descriptions were small and the length of the tube in specimens of Uropterygius and "Scuticaria" seem to vary with the size or age of the individual. The present specimen is in poor condition, is strongly compressed laterally, fins showing only on the end of tail and confluent around it, the dorsal extending about twice as far forward as the anal; eye 2.28 in the snout; snout 2.62 in gape; teeth in two series on the sides of upper jaw meeting at the symphysis, the outermost numerous and much smaller, inner long and sharp; behind the inner row of teeth in front are two cross-rows of four each, very long sharp teeth; mandible with two rows of teeth similar to those in upper jaw, but the long sharp teeth are bunched and not in rows.

Color in alcohol: — uniform dark purplish brown, no traces of markings anywhere observable; the vertical fins yellowish.

SILURIDAE.

Sciadeichthys troscheli (GILL).

JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 122.
Sciades troscheli GILL, Proc. Acad. Nat. Sci. Phil., 1863, p. 171.

One individual, No. 3142, $13\frac{1}{4}$ inches long from Panama anchorage.

POECILIIDAE.

Poecilia sphenops CUVIER & VALENCIENNES.

Hist. Nat. Poiss., 1846, **18**, p. 98 (130). Regan, Biol. Centr. Amer. Pisces, 1907, p. 102, pl. 13, fig. 1–7.

Twenty-five specimens $\frac{3}{4}$ to $1\frac{7}{8}$ inches long from one mile south of Panama City, October 23, 1904. M. C. Z. 29433 (10 specimens).

BELONIDAE.

Tylosurus stolzmanni (Steindachner).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 713.
Belone stolzmanni Steindachner, Sitzb. Ak. Wiss. Wien, 1878, **7**, p. 397; (Beiträge, 7, p. 21).

One specimen, No. 3254, 26 inches long from Wreck Bay, Chatham Island.

SCOMBRESOCIDAE.

Scombresox sp.

One specimen $1\frac{9}{16}$ inches long from Station 4709. Open sea between Galapagos Islands and Easter Island.

Three specimens 2 to $2\frac{1}{4}$ inches long from Station 4669, off Callao, Peru.

Three specimens (dried) $\frac{1}{2}$ to $\frac{3}{4}$ inches long from Station 4657, off coast of Peru. M. C. Z. 29610 (1 specimen).

One specimen $2\frac{1}{8}$ inches long from Station 4665, off Peru.

Eight specimens $\frac{9}{16}$ to $1\frac{1}{4}$ inches long from Station 4571, Lat. 33°, 40′ N.; Long. 119°, 35′ W.

Twelve specimens $\frac{13}{32}$ to $\frac{13}{16}$ inch long from Station 4651, Lat. 5°, 41.7′ S.; Long. 82°, 59.7′ W.

Eight specimens $1\frac{3}{4}$ to $2\frac{1}{4}$ inches long from Station 4667, Lat. 11°, 59.5′ S.; Long. 83°, 40.4′ W.

Three specimens $1\frac{7}{8}$ to $2\frac{1}{2}$ inches long from Station 4673, Lat. 12°, 30.5′ S.; Long. 77°, 49.4′ W.

We have compared these specimens with somewhat larger specimens of the young in the U. S. National Museum of *Scombresox saurus* and *S.* (*Cololabis*) *brevirostris*. Our examples are too small for certain identification with either.

HEMIRAMPHIDAE.

Hyporhamphus unifasciatus (Ranzani).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 720.
Hemiramphus unifasciatus Ranz., Nov. Comm. Ac. Sci. Inst. Bonon., 1842, **5**, p. 326.

Five specimens $5\frac{5}{8}$ to $6\frac{5}{16}$ inches long from Acapulco, February 28, 1905, M. C. Z. 29436 (2 specimens).

Hyporhamphus roberti (Cuvier & Valenciennes).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 721.
Hemiramphus roberti Cuv. & Val., Hist. Nat. Poiss., 1846, **19**, p. 18 (24).

One specimen, No. 3349, $7\frac{1}{4}$ inches long from Acapulco.

Hemiramphus saltator Gilbert & Starks.

Mem. Cal. Acad. Sci., 1904, **4**, p. 53, pl. 9, fig. 16.

Two specimens $2\frac{1}{4}$ and 3 inches long from Station 4596, off Acapulco, M. C. Z. 29591 (1 specimen).

These are provisionally placed here as they agree very well in most respects. In spirits the color of the beak is black; a broad dark brown band running from snout through eye to base of caudal, above which the body is lighter brown; sides of head from and below eye across the opercle and side of belly abruptly silvery; two dusky stripes along belly beginning faintly at throat, increasing in intensity to ventral fin and terminating near front of anal where they merge into the dusky color of that part of body; pectoral pale, dorsal dusky posteriorly; ventrals pale with large black area covering nearly entire base of fin and narrowing as it continues on inner edge to last third of fin.

EXOCOETIDAE.

Exocoetus volitans Linné.

Syst. Nat., ed. 10, 1758, p. 316. Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 351.

One specimen $2\frac{5}{8}$ inches long from Station 4615, Lat. 9°, 7′ N.; Long. 85°, 11′ W.

Dorsal 12; anal 13. Barbel at chin black, nearly as long as head; insertion of ventrals about midway between tip of lower jaw and base of next to last anal ray; ventrals short, not nearly reaching anal; pectorals long, reaching nearly, to fork of caudal; upper pectoral ray simple, other rays branched; caudal lobes unequal, lower longer than head; pectoral black, the lower three or four rays pale, tips of others probably white; pectoral with a large black spot near base of inner rays, another one near the end of the fin at the outer end of the same rays; caudal pale with some dusky punctulations on lower half of lower lobe; membranes of dorsal and anal black, especially posteriorly; back brownish; belly silvery; traces of four broad, dark cross-bands on body, most distinct posteriorly, the second of these bands immediately in front of dorsal, the 3rd extending from base of 6th to base of 10th dorsal rays inclusive; 4th on base of caudal peduncle; chin and snout with dusky punctulations.

The following specimens, with the two exceptions noted, differ somewhat from the preceding in color and also in not having a barbel on chin, but they agree in position and length of ventral and in the number of dorsal and anal rays.

One specimen $2\frac{1}{16}$ inches long from Station 4710, Lat. 9°, 30′ S.; Long. 95°, 83′ W.

Back and top of head light brown, thickly punctulated with darker; lower part of head and body silvery; pectoral dusky with a broad pale terminal margin and with a trace of a pale bar extending partly across fin, occupying the second 4th of fin reckoning from its base; trace of dusky transverse bar on body under posterior part of dorsal and extending somewhat on dorsal and anal fins; a dusky area at base of caudal fin.

Another specimen $1\frac{1}{2}$ inches long from Station 4720, Lat. 7°, 13′ S.; Long. 102°, 31.5 W.

Top of head and back to slightly beyond origin of dorsal purplish brown; lower parts pale, somewhat punctulate with darker; dusky area of back just back of pectoral fin extending as a broad faint bar nearly to ventral; a broad dark brown vertical bar on body under posterior part of dorsal extending somewhat on dorsal and on anal fins; in front of this a pale bar of about same width separating it from the body color anteriorly, and behind the dark bar another pale bar separating it from the dark area at base of caudal; ventrals pale; dorsal and anal pale, except from the extension of the dark bar; caudal pale; pectoral pale with a broad black triangular area covering about half of anterior margin of fin, apex of triangle on membrane between 6th and 7th ray; tips of all the rays pale, the membrane between the first and second rays punctulated with dark.

Two specimens, $\frac{7}{8}$ and $1\frac{3}{8}$ inches long, from Station 4718, Lat. 5°, 32.4 S.; Long. 99°, 32.2 W.

These specimens are similar in color to the last, as are also two specimens $\frac{7}{8}$ and 1 inches long from Station 4729, Lat. 7°, 15′ N.; Long. 82°, 8′ W.

Two specimens $1\frac{7}{8}$ and $2\frac{1}{8}$ inches long from Station 4640, Lat. 0°, 39.4 N.; Long. 88°, 11′ W. The smaller specimen has a long black barbel; ventral nearly all black. The larger has a long barbel, dusky with black tips; ventral like that in specimens from Station 4615.

Cypsilurus poecilopterus (Cuvier & Valenciennes).

Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 210, fig. 14.
Exocoetus poecilopterus Cuv. & Val., Hist. Nat. Poiss., 1846, **19**, p. 81 (112). Günther, Fische der Südsee, 1909, **8**, p. 368.

One specimen $\frac{15}{16}$ of an inch long from Station 4686, Lat. 18°, 47.1′ S.; Long. 89°, 26′ W.

Anal 12; dorsal 13 or 14 (broken and count uncertain). Cuvier and

Valenciennes state that the dorsal is 12 and anal 8, but in their figure at least 13 rays are shown in the anal. Bleeker (Atlas) states that the dorsal is 12 or 13 and anal 9, but his figure shows 12 or 13 in the anal.

General color pale, slightly brownish on back; body thickly sprinkled with black dots; pectoral black, dotted; ventral blackish; caudal pale; anal and dorsal broken, but showing indications of black color.

Cypsilurus sp.

One specimen $3\frac{1}{16}$ inches long from Station 4619, surface, Lat. 7°, 15′ N.; Long. 82°, 8′ W.

Length to base of caudal 63 mm.; head 4.5; depth 4.84; eye 2.33; snout very short; mouth small, very oblique; interorbital 2.33; dorsal $10\frac{1}{2}$; anal 8; pectoral reaches to below 9th dorsal ray; ventral inserted about midway between posterior margin of eye and base of caudal; insertion of the dorsal somewhat in advance of anal; scales about 45; first four rays of pectoral simple, shorter than others. Sixth pectoral ray longest; lower caudal lobe longest.

Color in spirits brownish above, silvery below; pectoral black with paler rays, base whitish below, tips white; ventral and dorsal black; anal pale; caudal pale with three faint diffuse spots on lower lobe.

Fodiator acutus (Cuvier & Valenciennes).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 728.
Exocoetus acutus Cuv. & Val., Hist. Nat. Poiss., 1846, **19**, p. 91 (125).

One specimen $\frac{3}{4}$ inch long from Acapulco.

Head 3.24 in length; length of beak 2.9 in head; eye 4.33 in head; dorsal 10; anal 11. Beak black; back brown; a blackish stripe with poorly defined edges along the side from behind pectoral; posterior part of body from insertion of ventrals to insertion of dorsal blackish; outer half of pectoral, except 1st ray, black, inner rays pale; ventrals, except 1st ray, black; anal and caudal pale; middle of dorsal black.

? Exonautes sp.

One specimen $1\frac{1}{4}$ inches long from Station 4646, Lat. 4°, 1.6′ S.; Long. 89°, 16.3′ W., surface.

Length to base of caudal 26 mm.; head 4.74 ; depth 6.50; eye 2.06; interorbital 2.20; dorsal 10; anal 11; first 3 pectoral rays simple.

Color in alcohol:—general color plain pale straw; a few black dots on top of head and on jaws; body without spots anterior to origin of ventral, posterior

to this many small black dots extending back as far as last dorsal ray, on the sides to the caudal, and on the ventral surface to the last anal ray; pectoral plain translucent with broad black anterior and lateral margin, posterior margin plain; ventral thickly dotted with black; a large black spot about as large as eye lying on the posterior outer half of fin.

Another specimen $1\frac{1}{4}$ inches long from Station 4619, Lat. 7°, 15′ N.; Long. 82°, 8′ W., had dorsal 10; anal 11.

A third specimen $\frac{3}{4}$ inches long from Station 4741.

In the last two specimens the origin of ventrals is midway between posterior margin of eye and base of lower caudal rays; first three rays of pectoral simple.

ATHERINIDAE.

Kirtlandia gilberti (Jordan & Bollman).

Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 58.
Menidia gilberti Jordan & Bollman, Proc. U. S. Nat. Mus., 1890, **12**, p. 155.

Thirty-five specimens $1\frac{1}{4}$ to $3\frac{3}{8}$ inches long from Naos Island, Panama Bay, October 27, 1904. Seined, sand beach. M. C. Z. 29438 (10 specimens).

MUGILIDAE.

Mugil hospes Jordan & Culver.

Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 422, pl. 31. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 60.

Seventeen specimens $1\frac{1}{8}$ to $1\frac{5}{8}$ inches long from Station 4596, Lat. 16° 47′ N.; Long. 100° 27′ W., October 14, 1904. M. C. Z. 29543 (7 specimens). Scales strongly ctenoid.

Chaenomugil proboscideus (Günther).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 816.
Mugil proboscideus Günther, Cat., 1861, **3**, p. 459.

Six specimens 3 to $3\frac{7}{8}$ inches long from beach at Culebra Island, October 27, 1904.

Two specimens M. C. Z. 29428, $2\frac{3}{4}$ and 3 inches long from Acapulco, February 28, 1905.

One specimen $2\frac{3}{8}$ inches long from Chatham Island, January 9, 1905.

Neomyxus ciliilabis (Cuvier & Valenciennes).

Mugil ciliilabis Cuv. & Val., Hist. Nat. Poiss., 1836, **11**, p. 112 (151).

Ten examples of this interesting species, $1\frac{5}{8}$ to $2\frac{5}{16}$ inches long from Chatham Island. M. C. Z. 29368 (1 specimen).

Head 3.5 in total length (without caudal); depth 3.78; eye 3.5 in head; snout 3.5; D. IV–I, $8\frac{1}{2}$; A. II, 10; scales 42 in longitudinal series, 12 in transverse series, counted downward and forward from front of 2nd dorsal; maxillary not nearly reaching eye; cilia on each lip in one row anteriorly and at least two rows posteriorly on sides; no vomerine or palatine teeth present.

Neomyxus chaptalii (Eydoux & Souleyet).

Mugil chaptalii Eydoux & Souleyet, Voyage Bonite. Zool., 1842, **1**, p. 171, pl. 4, fig. 1.
Chaenomugil chaptalii Jordan & Evermann, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 140, fig. 49.

Twenty-six specimens $1\frac{15}{16}$ to $3\frac{3}{4}$ inches long from Manga Reva, Paumotus Islands, February 3, 1905. M. C. Z. 29449 (10 specimens).

SPHYRAENIDAE.

Sphyraena idiastes Heller & Snodgrass.

Proc. Wash. Acad. Sci., 1903, **5**, p. 190, pl. 2.

Four specimens $1\frac{7}{8}$ to $2\frac{3}{4}$ inches long from Chatham Island. M. C. Z. 29588 (2 specimens).

POLYNEMIDAE.

Polydactylus approximans (Lay & Bennett).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 829.
Polynemus approximans Lay & Bennett, Zool. Beechey's Voyage, 1839, p. 57.

One specimen $8\frac{1}{4}$ inches long from Panama City fish market.

Polydactylus opercularis (Gill).

Jordan & Evermann, Bull, 47, U. S. Nat. Mus. 1896, pt. 1, p. 830.
Trichiodion opercularis Gill, Proc. Acad. Nat. Sci. Phil., 1863, p. 68.

Four specimens $5\frac{1}{8}$ to $6\frac{3}{8}$ and one specimen, No. 3136, $8\frac{3}{8}$ inches long from Panama Bay; one specimen, $9\frac{3}{4}$ inches long from Panama City fish market. M. C. Z. 29555 (3 specimens).

SYNGNATHIDAE.

Siphostoma californiensis (Storer).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1891, pt. 1, p. 764.
Syngnathus californiensis Storer, Proc. Bost. Soc. Nat. Hist., 1845, **2**, p. 73.

One specimen $2\frac{15}{16}$ inches long from Station 4571, Lat. 33°, 40′ N.; Long. 119°, 35′ W.

Dorsal rays 39, situated on 1 + $8\frac{1}{2}$ rings; body-rings 21; caudal rings about 45.

HOLOCENTRIDAE.

Myripristis occidentalis (Gill).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 847.
Myriopristis occidentalis Gill, Proc. Acad. Nat. Sci., Phil., 1863, p. 87.

Plate 2, fig. 1.

Ten specimens $4\frac{1}{2}$ to 6 inches long and eighteen specimens $2\frac{1}{8}$ to $2\frac{5}{8}$, from Acapulco. M. C. Z. 29709 (5 specimens).

Two specimens $\frac{15}{32}$ and $\frac{1}{2}$ inches long from Station 4615, Lat. 9°, 7′ N.; Long. 85°, 11′ W.

Myripristis microphthalmus Bleeker.

Verh. Bat. Genoot, 1852, **24**, p. 261. Atlas Ichth., 1877, **9**, tab. 358, Trachichth., 4, fig. 2

Three specimens, Nos. 3305, 3306, 3307, M. C. Z. 29670, $5\frac{7}{8}$ to $6\frac{7}{16}$ inches long from Rikitea, Manga Reva.

One specimen $5\frac{11}{16}$ inches long from Manga Reva, February 1, 1905, coral.

These agree with specimens from Samoa, identified as this species by Jordan and Seale.

Measurements.

	No. 3305	No. 3306	No. 3307	Manga Reva
Total length in inches	$5\frac{1}{16}$	$6\frac{7}{16}$	$5\frac{7}{8}$	$5\frac{1}{16}$
Head in length without caudal	3.05	3.17	3.02	3.08
Depth in length without caudal	2.20	2.24	2.22	1.96
Eye in head	2.29	2.27	2.29	2.31
Interorbital in head	3.71	3.72	3.54	3.70
Scales	$3\frac{1}{2}$–28+4–$5\frac{1}{2}$	$3\frac{1}{2}$–28+4–$5\frac{1}{2}$	$3\frac{1}{2}$–28+4–$5\frac{1}{2}$	$3\frac{1}{2}$–28+4–$5\frac{1}{2}$
Dorsal	X–i, 16	X–i, 16	X–I, 16	X–I, 16
Anal	IV, 14	IV, 14	IV, 14	IV, 14
Maxillary denticulations	none	present	none	R. none L. 4 large blunt.
Edge of opercle	dusky	not dusky	dusky	dusky
Axil pectoral	black	black	black	black

Myripristis pralinius Cuvier & Valenciennes.

Hist. Nat. Poiss., 1829, **3**, p. 127 (170). Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 222.

Eight specimens, Nos. 3188–95, $6\frac{5}{8}$ to 9 inches long from Cook Bay, Easter Island No. 3193, M. C. Z. 29624, No. 3194, M. C. Z. 29625, No. 3195, M. C. Z. 29620.

The description and figure of *M. sanguineus* given by Jordan and Seale is erroneous. We have examined and measured the Type, U. S. Nat. Mus. No.

51721, $7\frac{1}{8}$ inches long and find it differs from the measurements given by Jordan and Seale as follows: —head 3.08 instead of 3.40 in length; eye 2.19 instead of 2.50 in head; dorsal X–1, $15\frac{1}{2}$ instead of X–1, 14 (15 in figure); anal IV, $14\frac{1}{2}$ instead of IV, 13 (14 in figure); interorbital 3.53 instead of 3.85 in head.

The patch of enlarged blunt outer teeth on each side of upper and lower jaw referred to by Jordan and Seale are very probably sexual or breeding tubercles since they are not constant, and are found in other species. If, however, they refer to the presence or absence of true outer enlarged teeth in the maxillary, these also are not characteristic, since they are present in varying degree in all the specimens we have examined. The dentition on the lower posterior margin of maxillary is not characteristic, it may or may not be present; in some specimens it is found on one side and not on the other.

The following comparative measurements, of eight examples here identified as *M. pralinius* from Cook Bay, Easter Island, three examples from Samoa (identified as such by Jordan and Seale), the Type of *M. sanguineus* from Samoa and the Type of *M. symmetricus* from Hawaii, show such slight differences in essential characters that we are unable to separate the species.

Proportional measurements of M. pralinius from Cook Bay.

	No. 3188	No. 3189	No. 3190	No. 3191
Head in length without caudal	2.94	2.96	3.07	3.08
Depth in length without caudal	2.64	2.69	2.56	2.67
Eye in head	2.03	2.04	2.19	2.14
Maxillary teeth on lower edge	R–L 7–4	R–L 2–7	R–L 8–2	none
Interorbital in head	4.07	4.08	3.73	3.75
Scales	$3\frac{1}{2}$–38+3–7	$3\frac{1}{2}$–38+3–7	$3\frac{1}{2}$–37+4–7	$3\frac{1}{2}$–36+4–7
Dorsal	X–1, $15\frac{1}{2}$	X–1, $15\frac{1}{2}$	X–1, $15\frac{1}{2}$	X–1, $15\frac{1}{2}$
Anal	IV, 13	IV, 13	IV, $13\frac{1}{2}$	IV, 14
	Dusky punctulations on tip of anal.		Dusky punctulations on tip of soft dorsal and anal.	

Proportional measurements of M. pralinius from Cook Bay.

	No. 3192	No. 3193	No. 3194	No. 3195
Head in length without caudal	2.92	2.94	2.68	2.96
Depth in length without caudal	2.50	2.54	2.30	2.62
Eye in head	2.03	2.07	2.14	2.07
Maxillary teeth on lower edge	R. bunched 11 of them. L. single row of 11.	R. group of 9. L. group of 20.	R–L 12–4	R–L 11–7

Proportional measurements of M. pralinius from Cook Bay. Continued.

	No. 3192	No. 3193	No. 3194	No. 3195
Interorbital in head	3.78	3.86	4.07	4.23
Scales	3½–37+3–7	3½–36+3–7	3½–38+3–7	3½–38+4–7
Dorsal	X–1, 15½	X–1, 15½	mutilated	X–1, 15½
Anal	IV, 14	IV, 15	IV, 13½	IV, 13½
	Dusky punctulations on tip soft dorsal and anal.	Dusky punctulations on tip dorsal.	Dusky punctulations on tip anal.	Dusky punctulations on anal and soft dorsal.

Proportional measurements.

	M. sanguineus Samoa Type U. S. N. M. No. 51721	*M. symmetricus* Hilo, Hawaii Type U. S. N. M. No 50630
Length in inches	7⅛	5½
Head in length without caudal	3.08	3.35
Depth in length without caudal	2.40	2.53
Eye in head	2.19	2.12
Maxillary teeth on lower edge	R–L 4–3	none
Interorbital in head	3.53	3.40
Scales	3½–37+–7	3½–36+4–7
Dorsal	X–1, 15½	X–1, 15
Anal	IV, 14½	IV, 13½
	Teeth like tubercles present on outer edge of upper and lower jaw.	

Proportional measurements of M. pralinius from Apia, Samoa.

Length in inches	5⅝	5¼	5⅛
Head in length without caudal	3.11	3.11	
Depth in length without caudal	2.48	2.58	
Eye in head	2.11	2.	
Maxillary teeth on lower edge	R–L 5–4	R–L 7–5	R–L 0–5
Interorbital in head	3.42	4.	
Scales	3½–36+4–7	3½–40–7	3½–38+ –7
Dorsal	X–1, 15½	X–1, 15½	X–1, 15½
Anal	IV, 14½	IV, 14½	IV, 15½
	Tooth-like tubercles present on outer edge of upper and lower jaw.		No tooth-like tubercles present on outer edge of upper and lower jaw.
		Dorsal and anal dusky at tips.	

Myripristis multiradiatus Günther.

Fische der Südsee, 1874, 3, p. 93. Jordan & Evermann, Bull. U. S. Bur. Fish., 1905, **23**, pt. 1, p. 49.

A specimen, No. 3308, 5 inches long from Rikitea, Manga Reva agrees with one collected by Jordan and Evermann at Honolulu, and also with their description of the species (Bull. U. S. Bur. Fish. **23**). The measurements of our specimen are as follows: —

Head 3.05 in length without caudal; depth 2.29 in length without caudal, eye 2.20 in head; interorbital 4.12 in head; dorsal X–1, $16\frac{1}{2}$; anal IV, $15\frac{1}{2}$ or 16; scales $3\frac{1}{2}$–40+3–$6\frac{1}{2}$; opercular margin black; axil black. The following; color note was found attached to the specimen: "General shade vermilion; edges of soft dorsal, caudal, ventral and anal white; brown-red bar from axil up across opercle, [vertical] bar through eye darker, bar cross preopercle."

Günther states that this species is closely related to *M. pralinius*, but it differs considerably from the form which we have identified as such.

Myripristis sealei Jenkins.

Bull. U. S. Fish Comm., 1904, **22**, p. 439, fig. 13.

Thirteen specimens, Nos. 3228–40, $5\frac{1}{2}$ to $6\frac{11}{16}$ inches long from Wreck Bay, Chatham Island. No. 3236, M. C. Z. 29621, No. 3237, M. C. Z. 29652, No. 3238, M. C. Z. 29622, No. 3239, M. C. Z. 29707, No. 3240, M. C. Z. 29626.

Owing to discrepancies in the description and figure, we have made measurements of the Type so that in comparing our specimens we may have the same personal equation.

Proportional measurements.

	Type	No. 3231	No. 3237	No. 3232
Head in length without caudal	3.17	3.00	3.10	3.08
Depth in length without caudal	2.63	2.69	2.75	2.53
Eye in head	2.26	2.37	2.22	2.30
Interorbital in head	3.77	3.80	4.21	4.60
Maxillary denticulation			none	7 on left 2 on right
Dorsal	X–1, $14\frac{1}{2}$	X–1, $14\frac{1}{2}$	X–1, $14\frac{1}{2}$	X–1, $14\frac{1}{2}$
Anal	IV, $12\frac{1}{2}$	IV, $12\frac{1}{2}$	IV, $12\frac{1}{2}$	IV, $12\frac{1}{2}$
Scales	4–37+–7	4–38+–7	4–37+–7	$3\frac{1}{2}$–38+–7
Length in inches	$5\frac{1}{4}$	$5\frac{1}{2}$	$5\frac{15}{16}$	$6\frac{11}{16}$

Some specimens have denticulations on the lower part of posterior maxillary, others do not, the Type has none; the anal is uniformly IV, $12\frac{1}{2}$; scales above

lateral line variable in the larger examples there being $3\frac{1}{2}$ including the one in lateral line, in the smaller 4. The interorbital width in head varies inversely as the size of the fish.

Holocentrus suborbitalis Gill.

Proc. Acad. Nat. Sci. Phil., 1863, p. 86. Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 360.

Plate 2, fig. 2.

Seven specimens, Nos. 3344–48 and 3362–3, $5\frac{3}{8}$ to 7 inches long from Acapulco. No. 3344, M. C. Z. 29666, No. 3345, M. C. Z. 29667, No. 3346, M. C. Z. 29692, No. 3347, M. C. Z. 29619, No. 3348, M. C. Z. 29689.

Three specimens, Nos. 3144–5, $7\frac{1}{2}$ and $6\frac{5}{8}$ inches long and one untagged $6\frac{1}{2}$ inches long, among coral, all from Toboguilla Island, Bay of Panama.

Four specimens $1\frac{9}{16}$ to 6 inches long from Perico Island, Bay of Panama. M. C. Z. 29427 (3 specimens), 29554 (1 specimen).

Ten specimens, $\frac{1}{2}$ to $\frac{21}{32}$ inches long from Station 4619, Lat. 7°, 15′ N.; Long. 82°, 8′ W.

One specimen $\frac{17}{32}$ inches long from Station 4615, Lat. 9°, 7′ N.; Long. 85°, 11′ W.

One specimen, No. 3348, 7 inches long measures 147 mm. from tip of snout to base of caudal; head 3.2 in length without caudal; depth 2.5 in length without caudal; eye 2.8 in head; snout 4.0 in head; maxillary 2.25 in head; interorbital 4.5 in head; preopercular spine, measured on its upper edge, 3.75 in head; pectoral 1.29 in head; ventral 1.32 in head; 3rd anal spine 1.36 in head; dorsal XI–14; anal IV, 9; scales 4–38–8.

One specimen, No. 3227, 7 inches long from Wreck Bay, Chatham Island, differs slightly from the above example. It is a little deeper; the eye is slightly smaller; interorbital a little narrower; preopercular spine a little longer and 3rd anal spine somewhat shorter. Its length to base of caudal is 150 mm. and it has the following measurements: — Head 3.33 in length without caudal; depth 2.38 in length without caudal; eye 2.9 in head; snout 4.28 in head; maxillary 5.00 in head; interorbital 5.62 in head; preopercular spine, measured on its upper edge, 3.46 in head; pectoral 1.32 in head which equals the ventral; 2nd anal spine 1.55 in head; dorsal XI–14; anal IV, 9; scales 4–38–8.

Holocentrus punctatissimus Cuvier & Valenciennes.

Jordan & Evermann, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 162, fig. 60.
Holocentrum punctatissimum Cuv. & Val., Hist. Nat. Poiss., 1829, **3**, p. 160 (215).

One specimen $3\frac{1}{2}$ inches long from Easter Island.

Holocentrus diadema LACÉPÈDE.

Hist. Nat. Poiss., 1802, **4**, p. 335, 372, 374, pl. 32, fig. 3; JORDAN & SEALE, Bull. U. S. Bur. Fish., 1906, **25**, p. 225.

Two specimens, Nos. 3309–10, 5 and 5 $\frac{5}{16}$ inches long from Rikitea, Manga Reva.

In smaller specimens the spinous dorsal membranes and the axil of the pectoral are very dark brown; in larger specimens the membrane of the dorsal is lighter.

Five specimens, $4\frac{1}{4}$ to $5\frac{3}{4}$ inches long from Manga Reva, coral reef. M. C. Z. 29696 (2 specimens).

The fins of two of the smaller specimens and of the largest are typically colored, varying a little in intensity. In the other specimen the spinous dorsal is merely mottled and streaked with brown; the white marks on the anterior dorsal membranes are distinct, no black below white on first three membranes; the axil of the pectoral in the smallest specimens with a slightly brownish tinge formed of fine punctulations; the next in size has the axil about same on one side, darker on other; the third has the axil quite dark brown, and in the largest it is a very dark brown, almost black.

Holocentrus sammara (FORSKÅL).

JORDAN & EVERMANN, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 155, fig. 56.
Sciaena sammara FORSKÅL, Descrip. Anim., 1775, p. 48.

Four specimens Nos. 3296–99, $6\frac{3}{8}$ to $7\frac{3}{4}$ inches long, and three specimens $4\frac{7}{8}$ to $7\frac{3}{8}$ inches long from coral reef, all from Manga Reva. M. C. Z. 29703 (2 specimens).

Holocentrus opercularis (CUVIER & VALENCIENNES).

JORDAN & SEALE, Bull. U. S. Bur. Fish., 1906, **25**, p. 227.
Holocentrum operculare CUV. & VAL., Hist. Nat. Poiss., 1831, **7**, p. 377 (501).

Two specimens, No. 3294–3295, M. C. Z. 29669, 10 and $9\frac{1}{2}$ inches long from Rikitea, Manga Reva.

The body colors are more like those represented in Bleeker's Atlas, **9**, tab. 360, Trachichth., 6, fig. 5, of *H. sammara*, than of his figure of *H. operculare*, tab. 358, Trachichth, 4, fig. 3, and of Günther's figure of *H. operculare* in Fische der Südsee, taf. 66, fig. A. Our specimens agree very well with the color description given by Jordan and Seale (*loc. cit.*).

SCOMBRIDAE.

Scomberomorus sierra Jordan & Starks.

Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 428. Gilbert & Starks, Mem. Cal. Acad., 1904, **4**, p. 68.

Two specimens $4\frac{1}{4}$ and $5\frac{9}{16}$ inches long from Panama Bay. M. C. Z. 29451 (1 specimen).

The larger specimen had the head 3.69 in length without caudal; depth 4.11; eye 4.14 in head; snout 2.90; maxillary 1.81; mandible 1.61; pectoral 2.23; soft dorsal 2.41; anal 2.41; dorsal XVII–I, 16–1–1–1–1–1–1–1–1; anal II–16–1–1–1–1–1–1–1–1. The other specimen had the head 3.91 in length without caudal; depth 4.94; eye 4.57 in head; snout 3.27; maxillary 1.77; mandible 1.65; pectoral 2.40; soft dorsal 2.18; anal 2.18; dorsal XVIII–I, 17–1–1–1–1–1–1–1–1; anal II–18–1–1–1–1–1–1–1.

Soft dorsal, in larger specimen, is separated by a slight space; in smaller specimen there seems to be no separation. The insertion of the dorsal in both is somewhat in advance of the origin of the anal.

Color in spirits; — brownish on back with bluish reflections; bright silvery on sides; a small dusky area on lower posterior margin of orbit; spinous dorsal with the membrane between the 1st and 4th entirely black, this color extending on to membrane between 4th and 5th, from about middle of 4th to near tip of 5th thence continued as a narrow black margin along rest of fin; caudal yellowish with dusky punctulations, these thickest on lobes and terminal margins; other fins yellowish with dusky punctulations; no spots anywhere.

CARANGIDAE.

Naucrates ductor (Linné).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 900.
Gasterosteus ductor Linné, Syst. Nat., ed. 10, 1758, p. 295.

One specimen M. C. Z. 29612, $\frac{3}{4}$ inch long from surface at Station 4706, Lat. 14°, 18.7′ S.; Long. 98°, 45.8′ W.

Dorsal IV–I, 29; anal II–I, 16.

Another specimen $1\frac{1}{4}$ inches long from Station 4704, Lat. 16°, 55.3′ S.; Long. 100°, 24.6′ W. D. IV–1, 29; A. II–I, 17.

One specimen $2\frac{1}{2}$ inches long from Station 4703, Lat. 17°, 18.6′ S.; Long. 100°, 52.3′ W.

These specimens are only provisionally identified with this species, as they are too small for certain identification.

Platystethus cultratus (Bloch & Schneider).

Günther, Cat., 1860, **2**, p. 391.
Sciaena cultrata Forster, MS.
Cichla cultrata Bloch & Schneider, Syst. Ichth., 1801, p. 343.

Plate 2, fig. 3.

No. 3198, a specimen $9\frac{1}{4}$ inches long from Cook Bay, Easter Island. Dorsal VIII–I, 27; anal II–I, 32; head 4 in length; depth 3.12; eye 3.50 in head; snout 3.25; maxillary 2.77; pectoral 1.38; ventral 2.77; longest dorsal spine (fifth) 4.34; scales 6–53 (57)–11, counted from origin of soft dorsal downward and forward to lateral line there are 8, counted from origin of spinous dorsal downward and backward to lateral line there are 6, below the lateral line, counted downward and forward to anal there are 11; if all the scales are counted in the lateral line there are 57.

Color dark slaty and brownish above, lighter on the sides, silvery below; longitudinal dusky streaks following the rows of scales, those in axis of body continuing to base of caudal, successively shorter to the one on a line from about the base of pectoral, which one terminates under about the 6th dorsal ray; each row of scales on the sides of abdomen is streaked with white.

In our specimen the maxillary reaches the anterior margin of eye.

Decapterus sanctae-helenae (Cuvier & Valenciennes).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 908.
Caranx sanctae-helenae Cuv. & Val., Hist. Nat. Poiss., 1833, **9**, p. 28 (37).

One example, No. 3184, $12\frac{1}{4}$ inches long from Easter Island.

Head 3.8 in length; depth about 5; eye 3.27 in head; snout 3.13; pectoral 1.38; dorsal VII–I, 30; anal II–1, 26–1; scutes 34.

Provisionally identified with this species although it differs somewhat from current descriptions.

Hemicaranx atrimanus (Jordan & Gilbert).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 913.
Caranx atrimanus Jordan & Gilbert, Bull. U. S. Fish. Comm., 1882, **1**, p. 308.

Three specimens $7\frac{3}{8}$–$7\frac{3}{4}$ inches long from Panama Bay. M. C. Z. 29654 (1 specimen).

These specimens give the following measurements: —

Total length in inches	$7\frac{3}{4}$	$7\frac{5}{8}$	$7\frac{3}{8}$
Length without caudal	150 mm.	148 mm.	141 mm.
Head in length without caudal	3.57	3.79	3.52
Depth without caudal	2.28	2.20	2.16
Eye in head	3.81	3.90	4.21
Snout in head	3.81	3.71	3.80
Maxillary in head	3.23	3.12	3.07
Mandible in head	2.47	2.78	2.50
Pectoral in head	2.58	2.59	2.66
Length of arch in straight part of lateral line	2.08	2.14	2.
Height of arch in its length	2.99	2.91	3.08
Height of soft dorsal in head	1.68	1.56	1.80
Height of anal	1.71	1.77	2.
Dorsal	VIII–I, 27	VIII–I, 28	VIII–I, 27(28)
Anal	II–I, 24	II–I, 24	II–I, 24
Scutes in lateral line	58	58	58
	6 or 7 cross-bars; dusky area on base of pectoral large.	Same colors as first.	

Hemicaranx zelotes GILBERT.

Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2845. GILBERT & STARKS, Mem. Cal. Acad. Sci., 1904, 4, p. 76, pl. 12, fig. 22.

One specimen $7\frac{5}{8}$ inches long from Panama Bay.

This specimen had the head 3.84 in length without caudal; depth 2.72; eye 3.25 in head; snout 3.90; maxillary 3.25; mandible 2.78; pectoral 3.40 in length; length of chord of arch 2.59 in straight part of lateral line; height of arch 2.90 in length of chord; height of soft dorsal 1.95 in head; height of anal 2.00; dorsal VIII–I, 28; anal II–I, 24; scutes in lateral line 53. No cross-bars; base of pectoral dusky.

Hemicaranx leucurus (GÜNTHER).

JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 914.
Caranx leucurus GÜNTHER, Proc. Zool. Soc. London, 1864, p. 24.

One specimen $2\frac{1}{16}$ inches long from Panama Bay.

This specimen had the following measurements — head 3.03 in length; depth 2.20; eye 3.62 in head; snout 3.62; maxillary 2.63; mandible 2.23; pectoral broad and rounded, 4.40 in length; height of first soft dorsal ray 1.81; height first anal ray 2.07 in head; length of chord of arch of lateral line 2, in straight portion; height of chord 2.62 in arch; dorsal VIII–I, 28; anal II–I, 24; scutes 52. Preopercles strongly serrated, front of vertical fins rounded, first rays not highest; opercle dusky; pectoral yellowish, without blotch; dorsal anal, and caudal without dusky margins; five cross-bars, quite distinct.

Caranx hippos (LINNÉ).

JORDAN, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 432. GILBERT & STARKS, Mem. Cal. Acad. Sci., 1904, **4**, p. 77.
Scomber hippos LINNÉ, Syst. Nat. ed. 12, 1766, **12**, p. 494.

Two specimens $3\frac{9}{16}$ and 6 inches long from Panama Bay. M. C. Z. 29702, (1 specimen).

Caranx caballus (GÜNTHER).

Trans. Zool. Soc. London, 1869, p. 431. GILBERT & STARKS, Mem. Cal. Acad. Sci., 1904, **4**, p. 78.

One individual, No. 3125, $11\frac{3}{4}$ inches long from Panama.

Caranx marginatus GILL.

Proc. Acad. Nat. Sci. Phil., 1866, p. 166. GILBERT & STARKS, Mem. Cal. Acad. Sci., 1904, **4**, p. 78.

Two specimens, No. 3352 and 3353, M. C. Z. 29665, $10\frac{1}{4}$ and 11 inches long from Acapulco.

One specimen, No. 3126, 11 inches long from Panama.

One specimen, M. C. Z. 29403, $4\frac{5}{8}$ inches long from Perico Island, Panama Bay, two fathoms.

Three specimens M. C. Z. 29589, each about $\frac{7}{8}$ inches long from Station 4619, Lat. 7°, 15′ N.; Long. 82°, 8′ W.

Dorsal VIII–I, 19 in two of them, and anal is 16 and 15; in the third the dorsal is VIII–I, 20; anal 17; each one has 30 scutes; depth is about 1.88 in length; head about 2.83; eye about 2.40 in head.

General color silvery, somewhat punctulate with dusky, especially on top of head and back, and caudal peduncle; six rather broad dusky cross-bars on body, growing fainter below, the first under front of spinous dorsal, 6th across caudal peduncle; anterior portion of spinous dorsal black, rest of spinous dorsal translucent with dusky rays, all the other fins are colorless in one example and yellowish in others.

Caranx guara (BONNATERRE).

JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 926.
Scomber guara BONN., Encycl., 1788, p. 139, pl. 58.

One specimen, No. 3197, M. C. Z. 29717, $15\frac{1}{4}$ inches long from Easter Island.

One specimen, No. 3172, about $21\frac{1}{4}$ inches long probably from Easter Island.

These specimens are provisionally identified as this species although the head is considerably longer than that given in the description by Jordan and Evermann (Bull. 47, U. S. Nat. Mus., p. 926).

No. 3197 has, head 2.89 in length; depth 2.76; eye 6.05 in head; snout 2.42; preorbital 6.81; width maxillary 1.63 in eye, not reaching eye; pectoral 2.86 in length; dorsal VIII–I, 25; anal II–I, 21; scutes twenty-four on each side; breast, cheeks, opercles, and top of head scaly; teeth in upper jaw, short, blunt, and in two irregular series, outer teeth slightly larger, one series on lower jaw; fine teeth on vomer and palatines.

No. 3172 has head 2.60 in length; depth 2.83; eye 6.44 in head; snout 2.40; preorbital 6.44; pectoral 1.14 in length; width maxillary 1.79 in eye; dorsal VIII–I, 25; anal II–I, 21; fins in both specimens with a narrow scaly sheath and scales similar; teeth in upper jaws like those of No. 3197, but in a single series in each jaw; no teeth on vomer, a series of very fine teeth on palatines.

Vomer setapinnis (Mitchill).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 934, 1900, pt. 4, pl. 144, fig. 392.
Zeus setapinnis Mitchill, Trans. Lit. & Philos. Soc. N. Y., 1815, **1**, p. 384, pl. 1, fig. 9.

Three specimens $6\frac{1}{4}$–$6\frac{1}{2}$ inches long from Panama Bay. M. C. Z. 29710 (1 specimen).

Chloroscombrus orqueta Jordan & Gilbert.

Proc. U. S. Nat. Mus., 1883, **5**, p. 646. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. I, p. 938.

Two specimens $5\frac{3}{8}$ and $6\frac{1}{4}$ inches long from Panama Bay. M. C. Z. 29715 (1 specimen).

Trachinotus rhodopus Gill.

Proc. Acad. Nat. Sci. Phil., 1863, p. 85. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 82.

One specimen, No. 3119, 11 inches long from Panama.

The prolonged vertical fins reach much beyond middle of caudal.

Three specimens $1\frac{1}{4}$ and $1\frac{7}{16}$ inches long from Perico Island, dredged near shore in two fathoms. M. C. Z. 29545 (2 specimens).

One specimen $1\frac{1}{4}$ inches long from Station 4596, Lat. 16°, 47′ N.; Long. 100°, 27′ W.

NOMEIDAE.

Nomeus gronovii (Gmelin).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 949.
Gobius gronovii Gmelin, Syst. Nat., ed. 13, 1789, **1**, pt. 3, p. 1205.

Two specimens, $\frac{3}{4}$ to $\frac{15}{16}$ inches long from surface at Station 4542, Lat. 14°, 50′ N.; Long. 101°, 31′ W. M. C. Z. 29613 (1 specimen).

CORYPHAENIDAE.

Coryphaena hippurus LINNÉ.

Syst. Nat., ed. 10, 1758, p. 261. JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 952.

One specimen $\frac{7}{8}$ inch long from Station 4615, Lat. 9°, 7′ N.; Long. 85°, 11′ W.

? Coryphaena equisetis LINNÉ.

Syst. Nat., ed. 10, 1758, p. 261. JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 953.

One specimen, M. C. Z. 29595, $\frac{11}{16}$ inch long from surface at Station 4727, Lat. 13°, 03′ S.; Long. 112°, 44.9′ W.

One specimen $1\frac{1}{8}$ inches long from surface at Station 4716, Lat. 2°, 18.5′ S.; Long. 90°, 2.6′ W.

Four specimens $\frac{3}{4}$–$\frac{7}{8}$ inches long from surface at Station 4729, Lat. 14°, 15′ S.; Long. 115°, 13′ W.

One specimen, M. C. Z. 29601, $1\frac{1}{16}$ inches long from surface at Station 4619, Lat. 7°, 15′ N.; Long. 82°, 8′ W.

CENTROPOMIDAE.

Centropomus robalito JORDAN & GILBERT.

Proc. U. S. Nat. Mus. 1882, **4**, 462. GILBERT & STARKS, Mem. Cal. Acad. Sci., 1904, **4**, p. 94, pl. 13, fig. 25.

One specimen $9\frac{1}{4}$ inches long from Panama City Fish Market.

CHEILODIPTERIDAE.

Amia exostigma JORDAN & STARKS.

JORDAN & STARKS, Bull. U. S. Bur. Fish., 1906, **25**, p. 238, fig. 3.

Three specimens $3\frac{5}{16}$–$4\frac{7}{8}$ inches long from Manga Reva, coral. M. C. Z. 29432 (1 specimen).

Proportional measurements.

				Type
Total length in inches	$4\frac{7}{8}$	$4\frac{3}{4}$	$3\frac{5}{16}$	$2\frac{5}{8}$
Length without caudal	102 mm.	97 mm.	67 mm.	57 mm.
Head in length without caudal	2.78	2.77	2.68	2.85
Depth	3.18	3.03	3.19	3.80
Eye in head	3.36	3.18	3.12	2.85
Snout in head	3.21	3.50	3.57	3.33
Maxillary in head	2.31	2.18	2.	2.22
Interorbitals in head	5.28	5.83	5.25	5.71
Dorsal	VII–I, 10	VII–I, 10	VII–I, 10	VII–I, 10
Anal	II, 9	II, 9	II, 9	II, 9
Scales	3–25–5	3–25–5	3–25–5	3–25–5

In the largest specimen, the orbital rims have, except in front, strong denticulations, those below the eye the largest, some of which are bifid and trifid, and one on each side broad cusp-like with four or five points; lateral stripe from tip of snout through eye and across opercle broad and distinct, on the body very faint; above this another scarcely distinguishable stripe coalescing with the lower posteriorly at end of downward curve of lateral line; caudal spot small.

In the $4\frac{3}{4}$ inch specimen the orbital rim is not strongly toothed, very few above and the stronger ones below are nearly all single. Coloration as in the larger specimen.

In the smallest specimen the coloration differs in having the median lateral stripe more distinct; the one above is not evident and the caudal spot is larger; no teeth about eye, except on lower margin, these all strong, sharp, and single.

These specimens have a different physiognomy from *A. frenata* and *A. snyderi*; mouth nearly horizontal and body somewhat more elongate.

In the Type the lateral stripe is very much more distinct; large, sharp, single serrations on lower orbital rim. It differs from *A. frenata* and *A. snyderi* in being more slender, with a somewhat different physiognomy, more nearly horizontal mouth, and also in color.

Amia savayensis (GÜNTHER).

JORDAN & SEALE, Bull. U. S. Bur. Fish., 1906, **25**, p. 239, fig. 33.
Apogon savayensis GÜNTHER, Proc. Zool. Soc. Lond., 1871, p. 656.

Twenty-seven specimens $3\frac{1}{2}$ to $4\frac{3}{8}$ inches long from Manga Reva, among coral. M. C. Z. 29552 (10 specimens).

The following color note was found among these specimens:—"Pearly iridescence throughout, dark shades on edges of caudal and dorsal; maxillary yellowish from streak."

Amia erythrina (SNYDER).

JORDAN & SEALE, Bull. U. S. Bur. Fish., 1906, **25**, p. 245.
Apogon erythrinus SNYDER, Bull. U. S. Fish Comm., 1904, **22**, p. 526, pl. 9, fig. 17.

One specimen $1\frac{11}{16}$ inches long from coral reef at Manga Reva.

Head 2.64 in length without caudal; depth 2.64; eye 2.94 in head; snout 3.84; interorbital 3.57; maxillary 2; length of caudal peduncle 1.56; depth of caudal peduncle 2.50; second dorsal spine 1.56; dorsal VI–I, $9\frac{1}{2}$; anal II, $8\frac{1}{2}$ (9); scales $2\frac{1}{2}$–26–6; scales in front of dorsal 5.

Color in spirits: — general color dark straw, with dusky punctulations on edge of scales, back, and sides; these most numerous on nape and opercle and along base of the dorsal; pectoral pale; soft dorsal, caudal, and anal punctulate with black with broad blackish margins; ventral pale, with dusky terminal margins.

Amia doryssa JORDAN & SEALE.

JORDAN & SEALE, Bull. U. S. Bur. Fish., 1906, **25**, p. 245, fig. 39.

One specimen $1\frac{3}{4}$ inch long from Manga Reva, coral.

This specimen has, head 2.61 in length; depth 2.83; eye 2.60 in head; snout 4.72; interorbital 4.87; maxillary 1.71; 2nd dorsal spine 1.25; dorsal VI–I, 10; anal II, 9; scales 2–25–6.

Amia dovii (GÜNTHER).

Apogon dovii GÜNTHER, Proc. Zool. Soc. London, 1861, p. 371. GILBERT & STARKS, Mem. Cal. Acad. Sci., 1904, **4**, p. 88.

Four specimens $1\frac{5}{8}$ to $2\frac{1}{2}$ inches long from Perico Island, Panama Bay. M. C. Z. 29423 (2 specimens).

Amia atradorsata (HELLER & SNODGRASS).

SNODGRASS & HELLER, Proc. Wash. Acad. Sci., 1905, **6**, p. 367.
Apogon atradorsatus HELLER & SNODGRASS, Proc. Wash. Acad. Sci., 1903, **5**, 192, pl. 3.

One hundred and twenty specimens $2\frac{1}{4}$ to $3\frac{5}{16}$ inches long from Chatham Island, shore. M. C. Z. 29417 (20 specimens).

We have identified these specimens as *A. atradorsata* because of the presence of the black tip on soft dorsal; this character varies (in our specimens) from very slightly dusky to jet black, and seems a slight, though the only apparent, difference between it and *A. atricauda*.

Two of the larger specimens had eggs and young Amias in their mouths, one of them had "eyed" eggs and the other young fish.

Amia retrosella GILL.

GILL, Proc. Acad. Nat. Sci. Phil., 1862, p. 251.
Apogon retrosella JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 1108.

Many specimens, $\frac{15}{16}$ to $3\frac{1}{8}$ from Acapulco, February 25, 1905.

Seventeen specimens, $1\frac{13}{16}$ to $3\frac{3}{8}$ from Acapulco, February 28, 1905. M. C. Z. 29455 (10 specimens).

Fowleria isostigma (JORDAN & SEALE).

Apogonichthys isostigma JORDAN & SEALE, Bull. U. S. Bur. Fish., 1906, **25**, p. 251, fig. 45.

Four specimens 3 to $4\frac{3}{4}$ inches long from Manga Reva, coral. M. C. Z. 29542 (2 specimens).

These specimens are identifiable with the Types of *Apogonichthys isostigma*, in the U. S. National Museum, but they differ somewhat from the description of Jordan and Seale. They state that "This species is nearest *Apogonichthys polystigma* Bleeker, but that it does not seem to agree with Bleeker's account." The chief discrepancies, which are doubtless due to the personal equation of the observers, in these two descriptions are, in Bleeker's description, the larger eye, more numerous scales and the two jaws are equal; his figure shows a little longer lower jaw, the dusky line from back of eye extending more obliquely downward and backward and the body spots not so well defined. In the Types as well as in our specimens, the eye (orbit) is not so small as indicated by Jordan and Seale, or so large as stated by Bleeker, and the scales, according to our method of counting, in both our specimens and the Type agree with Bleeker's count. When the mouth is partly open, the jaws appear equal, although when closed, the lower is included, which tends to make *F. isostigma* still nearer to *A. polystigma*. But in his Atlas Bleeker includes *A. polystigma* in the genus Amia, which he states has palatine teeth; *F. isostigma* has no palatine teeth.

We give the following comparative measurements of our four specimens, of the Type?, and two cotypes of *F.* (*Apogonichthys*) *isostigma*, together with measurements taken from Bleeker's figure of *F.* (*Apogonichthys*) *polystigma*.

Specimens from Manga Reva.

Total length in inches	$4\frac{3}{16}$	$3\frac{11}{16}$	3	3
Length without caudal	89 mm.	78 mm.	63 mm.	63 mm.
Head in length without caudal	2.87	2.69	2.73	2.62
Depth in length without caudal	2.96	3.12	3.15	3.15
Orbit in head	3.66	3.62	3.28	3.42
Snout in head	4.40	4.14	3.83	4.8
Interorbital in head	6.	7.25	6.54	6.85
Maxillary	1.73	1.93	1.77	1.92
Dorsal	VII–I, 10	VII–I, 9	VI–I, 9	VII–I, 9
Anal	II, 9 (8)	II, 8	II, 9	II, 9 (8)
Scales	3–25+1–6	3–25+1–6	3–25+1–6	3–25+1–6

	Fowleria (*Apogonichthys*) *isostigma*.[1]			*Apogonichthys polystigma*.
	Cotype ?	Cotype ?	Type ?	Bleeker's figure
Total length in inches	$3\frac{1}{8}$	$2\frac{9}{16}$	$2\frac{5}{8}$	
Length without caudal	70 mm.	53 mm.	53 mm.	61 mm.
Head in length without caudal	2.69	2.65	2.52	2.44
Depth without caudal	3.04	3.11	2.94	2.90
Orbit in head	3.71	3.33	3.50	3.57
Snout in head	4.33	4.	4.20	5.
Interorbital in head	6.50	6.66	7	
Maxillary	1.85	1.81	1.91	2.08
Dorsal	VI–I, 9	?–9	?–9	
Anal	II, 9	?–9	?–9	
Scales	3–25+1–6	3–25+1–6	3–25+1–6	

In the Manga Reva specimens all have the soft dorsal, caudal, and anal with a pale yellowish margin; it is also evident in some of the Type specimens, although it is not mentioned in the description or figure. Bleeker does not mention such a character in *A. polystigma*.

On two of our Manga Reva specimens the lateral line for its entire extent has fully developed tubes to the base of caudal; in the other two specimens, they are rudimentary posteriorly, as in the Types and as described by Bleeker for *A. polystigma*.

Paramia lineatus (Lacépède).

Cheilodipterus lineatus Lac., Hist. Nat. Poiss., 1802, **3**, p. 542.
Paramia macrodon Jordan & Seale, Bull. U. S. Bur. Fish., 1905, **25**, p. 252.

One specimen $6\frac{7}{8}$ inches long from Manga Reva.

KUHLIIDAE.

Kuhlia nutabunda, sp. nov.

Plate 3, fig. 1.

Type No. 65551, U. S. Nat. Mus., $5\frac{7}{8}$ inches long, and 90 cotypes $1\frac{1}{8}$ to 4 inches long, all from Easter Island. M. C. Z. 29572 (37 specimens).

The type has the following measurements: —

Head 3.21 in length without caudal; depth 2.70; eye 2.64 in head; snout 3.70; maxillary 2.31; mandible 1.94; interorbital 3.45; dorsal IX–I, 11; fourth

[1] Jordan and Seale state that the Type is No. 51736 U. S. National Museum and that it is 2.67 inches long. The bottle bearing this number and labelled Type of *Apogonichthys isostigma* in U. S. National Museum contained three specimens with a loose number tag. None of these specimens agree with the stated length, but the one that is nearest is marked type in the above table.

spine longest, 2.05 in head; longest soft ray 2.31; base of soft dorsal 1.85; anal III, 11, second anal spine equal in length to the third, 3.70 in head; longest anal ray 2.64, anal base 1.68; pectoral 1.54; scales 8(9)–52–12. In the transverse series from lateral line downward and backward to anal there are fourteen scales; downward and forward fourteen. The ascending limb of preopercle is finely serrated for some distance above the angle.

Color in spirits: — top of head and back very dusky, quite intense on tip of snout and lower lip; below lateral line soiled silvery gray; dorsal dusky, most intense on outer margin; tip of anterior rays pale; anal similar; pectoral and ventral yellowish, punctulate with black; caudal very dusky, with black terminal margins.

A cotype 4 inches long has the following measurements: —

Head 3.11 in length without caudal; depth 3.11; eye 2.88 in head; snout 3.71; maxillary 2.36; mandible 1.92; interorbital 3.47; dorsal IX–I, 11; fourth dorsal spine longest, 1.92 in head; base of soft dorsal 1.85; longest ray 2.09; anal III, 11; second anal spine equals third, 3.05; base of anal 1.52, longest ray 2.60; pectoral 1.52; scales 8–52–12. *K. nutabunda* differs most conspicuously from *K. sandvicensis* and *K. marginata* in that it has a much larger eye, and *K. marginata* has fewer scales in transverse and longitudinal series. In general it is somewhat more slender than *K. sandvicensis* from the Paumotus, in this respect being more like Hawaiian specimens; the head is not so long as in *K. proxima.*

This species in general appearance closely resembles specimens of *Kuhlia sandvicensis* from Hawaii and also specimens which we have identified as *K. sandvicensis.* They are closely related to *Kuhlia proxima* Kendall and Goldsborough (Bull. M. C. Z., 1911, **26**, p. 282) from Fiji, and to *K. marginatus.*

In two of the specimens of the present species the eye varies considerably and affords no distinctive character, but it appears larger than in *K. sandvicensis.*

Kuhlia sandvicensis (STEINDACHNER).

Moronopsis argenteus var. *sandvicensis* STEINDACHNER, Sitzb. Ak. Wiss. Wein, 1876, **74**, p. 206 (Beiträge, **5**, p. 158).

Moronopsis sandvicensis STEINDACHNER, Sitzb. Ak. Wiss. Wein, 1887, **96**, p. 56 (Beiträge, 14, p. 1), taf. 1, fig. 1.

Five specimens $2\frac{7}{16}$–$2\frac{7}{8}$ inches long from Manga Reva, February 3, 1905, M. C. Z. 29440 (2 specimens).

SERRANIDAE.

Acanthistius cinctus (Günther).

Boulenger, Cat. 1895, **1**, p. 142, pl. 1.
Plectropoma cinctum, Günther, Cat. 1859, **1**, p. 162, pl. 13, fig. A.

One specimen $5\frac{13}{16}$ inches long from Easter Island, shore.

Trachypoma macracanthum Günther.

Cat. 1859, **1**, p. 167. Boulenger, Cat. 1895, **1**, p. 146, pl. 2.

Two specimens, No. 3173, M. C. Z. 2965, $7\frac{7}{8}$ inches long and No. 3174, $8\frac{1}{4}$ inches long from Cook Bay, Easter Island.

No. 3173 has head 2.31 in length without caudal; depth 2.55; eye 3.6 in head; snout 4.8; 5th dorsal spine longest, 2.32 in head; 2nd anal spine longest, strong, and stout, 2.25 in head; dorsal XII, 14; anal III, 6.

Many of the scales are ciliated but only a few are ciliated in No. 3174, the latter specimen agrees in other particulars with No. 3173.

No. 3173, was in life, brilliant orange, splotched with lighter shades; dark spots in centre of margin of soft dorsal; small white spots over body; branchiostegal membranes with brassy shades, the extended central margin of caudal brown, rest of margin darker.

Petrometopon panamensis (Steindachner).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 1141.
Scrranus panamensis Steindachner, Sitzb. Ak. Wiss. Wien, 1875, **72**, p. 551 (Beiträge, 4, p. 1), taf. 1, fig. 1.

Three specimens from Panama, No. 3127, $9\frac{1}{8}$, 3146, M. C. Z. 29681, $9\frac{7}{8}$, 3147, M. C. Z. 29659, $7\frac{1}{4}$ inches long.

Three specimens from Acapulco, No. 3332, $10\frac{1}{2}$, 3333, $9\frac{3}{4}$, 3339, M. C. Z. 29633, $10\frac{1}{2}$ inches long.

Three specimens $4\frac{3}{4}$ to $6\frac{3}{4}$ inches long from Toboguilla Island, from coral in two fathoms of water. M. C. Z. 29574 (1 specimen).

Epinephelus analogus Gill.

Proc. Acad. Nat. Sci. Phil., 1863, p. 163. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 96.

Two specimens, Nos. 3114 and 3143, M. C. Z. 29649, $12\frac{1}{2}$ and $9\frac{1}{2}$ inches long from Panama.

The round dark spots are not confined to the cross-bands, as described by Gilbert and Starks, there being a single cross-series on each interspace. Our specimens show distinctly only four cross-bands.

Epinephelus labriformis (JENYNS).

JORDAN, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 443. SNODGRASS & HELLER, Proc. Wash. Acad. Sci., 1905, **6**, p. 367.
Serranus labriformis JENYNS, Zool. Voy. Beagle. Fish, 1842, pt. 4, p. 8, pl. 3.

One specimen, No. 3128, $7\frac{3}{4}$ inches long from Panama.

One specimen $4\frac{1}{2}$ inches long from Toboguilla Island among coral in two fathoms of water.

Two specimens $3\frac{5}{8}$ and $4\frac{7}{8}$ inches long from Perico Island, Panama Bay.

Two specimens, Nos. 3385–86, $6\frac{1}{4}$ and $7\frac{1}{8}$ inches long. No. 3386, M. C. Z. 29631 and two specimens $3\frac{11}{16}$ and $4\frac{1}{4}$ inches long from Acapulco.

One specimen $1\frac{9}{16}$ inches long from shore at Chatham Island. This specimen has a strong spine at lower angle of preopercle.

Specimen No. 3386 has, head 2.46 in length without caudal; depth 3.08; eye 4.61 in head; snout 4.61; interorbital 8; maxillary 2.22; mandible 1.87; D. XI, $16\frac{1}{2}$; A. III, 9; scales 10–95–40.

No. 3385 has, head 2.55 in length; depth 3.02; eye 4.72 in head; snout 4.72; interorbital 7.42; maxillary 2.16; mandible 1.79; D. XI, $17\frac{1}{2}$; A. III, $8\frac{1}{2}$; scales 10–106–42.

No. 3128 has, head 2.46 in length; depth 3.01; eye 4.64 in head; snout 4.64; interorbital 7.22; maxillary 2.16; mandible 1.80; D. XI, 17; A. III, $8\frac{1}{2}$; scales 10–100–40.

No. 3386 has two canines in right side of upper jaw and one on left side; lower jaw has none on right side of symphysis and one on the left; on the sides of the upper jaw the teeth are in bands, graduating back to not less than four rows; and on the lower jaw to two rows, these larger than those on upper jaw. No. 3385 has two canines on right side of upper jaw and none on left; lower jaw has one canine on each side of symphysis; rows on the sides of upper jaw same as in preceding; lower jaw has two rows on right side and one on left. No. 3128 has one canine on each side in upper and lower and more than four rows on each side of upper jaw and on lower jaw graduating back to two and then to one row at posterior end of jaw.

No. 3385, has comparatively few unciliated scales on body above lateral line, these are restricted to the region in front of line from in front of upper angle of opercle to about the base of 7th dorsal spine. In No. 3386, these scales occupy the region above the lateral line from a line in front of upper angle of opercle toward base of 4th dorsal spine, and thence in a narrow stripe, gradually decreasing in width to the middle of base of soft dorsal. In No. 3128, these scales have practically the same extent as in No. 3386.

Color of No. 3128 in alcohol: — general color brown, darker above, becoming lighter on belly; top of head and nape uniform brownish; fins, body, and underside of head mottled with lighter spots, these varying in size from mere points, to size of pupil, traces of dusky spots, mingled with the light spots; traces of five narrow dark bars extending on sides below dorsal, the first in front of spinous dorsal, 2nd below 5th to 7th spines, 3rd below junction of dorsals, 4th below middle of soft dorsal and 5th below posterior end of soft dorsal; a black saddle on dorsal surface of caudal peduncle; traces of four black spots along upper edge of caudal with interspaces lighter than the rest of fins; spinous and soft dorsal color of body, mottled with spots of same color as those on body but more indistinct; margins yellowish with an inframarginal darker band; caudal body color, with yellow margin, mottling very indistinct; anal similar to soft dorsal; ventral rays body color, membrane lighter; upper and lower margins tinged with lighter; inner surface of pectoral color of body, outer surface lighter, with a tawny dusky yellowish margin shading into the darker body color at the base; the fin is mottled similar to body.

We can not distinguish our specimens from *Epinephelus hoevenii* Bleeker as described and figured in his Atlas or from *E. daemelii* as described and figured by Boulenger in his Catalogue or from *S. tumilabris* as described and figured by Day in his Fishes of India. *S. hoevenii,* in the Fishes of Zanzibar by Playfair and Günther also seem to be the same, but their *S. tumilabris* is evidently different, although they do not mention or figure the pale margins to the vertical fins in their *S. hoevenii.* Boulenger includes *S. hoevenii,* and *S. tumilabris* in the synonymy of *E. caeruleopunctatus* Bloch, but he regards *E. labriformis* and *E. daemelii* as distinct species. Our specimens agree somewhat better in most respects with *E. daemelii.* The *S. caeruleopunctatus* of both Bloch and Valenciennes are *sine patria* and their descriptions are insufficient for identification.

Epinephelus merra Bloch.

Ausl. Fische, 1793, **7**, p. 15, pl. 329. Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 258.

One specimen, No. 3289, $6\frac{1}{2}$ inches long and two specimens $6\frac{3}{8}$ and $6\frac{7}{8}$ inches long, all from Manga Reva. M. C. Z. 29713 (1 specimen).

Epinephelus socialis (Günther).

Boulenger, Cat., 1895, **1**, p. 243.
Serranus socialis Günther, Fische der Südsee, 1873, **1**, p. 7, taf. 8, fig. B.

One specimen, No. 3290, $7\frac{3}{4}$ inches long from Manga Reva.

Head 2.61 in length without caudal; depth 3.34; eye 5 in head; snout 5,

maxillary 2; mandible 1.71; interorbital 6.31; dorsal XI, $15\frac{1}{2}$ (16); anal III; $8\frac{1}{2}$ (9); scales downward and backward from front of spinous dorsal to lateral line 19, downward and backward from lateral line to front of anal 42, row above lateral line 100.

Our specimen agrees very closely in color with *Serranus socialis* Günther (*loc. cit.*, taf. 8, fig. B), except that the spots on the head and body, and the bars formed by confluent spots are smaller, more numerous, and more or less present from tip of pectoral back to caudal, the interspaces forming narrow pale rivulations.

Dermatolepis punctatus Gill.

Proc. Acad. Nat. Sci. Phil., 1861, p. 54. Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 368.

Three examples from Acapulco, No. 3319, $6\frac{7}{8}$ inches long; No. 3320, $8\frac{3}{4}$ inches long and No. 3341, M. C. Z. 29638, $8\frac{3}{8}$ inches long.

Prionodes fasciatus Jenyns.

Zool. Voy. Beagle, Fish., 1842, pt. 4, p. 47, pl. 9, fig. 1. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 1212.

Seven specimens $2\frac{1}{2}$–$4\frac{1}{2}$ inches long from Acapulco. M. C. Z. 29435 (3 specimens).

In the key to the genera of Serranidae Jordan and Evermann (*loc. cit.*, p. 1129–1130) place Prionodes in a group said to have no depressible teeth; in the generic description it is stated that "there are no depressible teeth in jaws." In our specimens some of the posterior premaxillary teeth and some of the lateral mandibular teeth are depressible. The prominence of the lower jaw varies somewhat; the caudal is slightly emarginate or truncate, and the upper rays somewhat produced, the prolongation varying somewhat in length.

Paranthias furcifer (Cuvier & Valenciennes).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 1222.
Serranus furcifer Cuv. & Val., Hist. Nat. Poiss., 1828, **2**, p. 196 (264).

Seven specimens, Nos. 3244–47, 3258, M. C. Z. 29675, No. 3259, No. 3260, M. C. Z. 29699, $5\frac{5}{8}$ to $10\frac{7}{8}$ inches long from Panama.

One hundred and four specimens $3\frac{9}{16}$ to $6\frac{1}{4}$ inches long from Toboguilla Island, Panama Bay. M. C. Z. 29553 (4 specimens). M. C. Z. 29636 (1 specimen).

Compared with a Clarion Island specimen, 2 or 3 inches longer than our largest specimen, the lower jaw in ours is a little more prominent; maxillary is a

little longer, reaching a little beyond middle of eye; eye a little larger; preopercular angle less salient, being nearly rounded. In the key to the genera of Serranidae Jordan and Evermann (*loc. cit.*, p. 1129–1130) place Paranthias in a group said to have no depressible teeth, but they have depressible teeth.

Rhegma thaumasium Gilbert.

Bull. 47, U. S. Nat. Mus., 1900, pt. 4, p. 3169. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 99, pl. 15, fig. 3.

Three specimens $1\frac{1}{4}$, $1\frac{9}{16}$ and $2\frac{1}{16}$ inches long from Toboguilla Island, Panama Bay, collected among coral at depth of two fathoms. M. C. Z. 29409 (1 specimen).

The larger specimen has head 2.75 in length; depth 3.66; eye 4 in head; snout 5.33; maxillary 1.77; D. VII, 22; A. III, 18; scales above lateral line in longitudinal series 50+, from origin of spinous dorsal downward and backward to lateral line $4\frac{1}{2}$; from lateral line downward and backward to origin of anal 21.

In the largest and the smallest specimens, the anterior nasal tube and the supraorbital flap are comparatively small, but in the intermediate specimen these are considerably larger.

In the largest specimen the general color is brown; throat, maxillary, cheek, lower opercle, and breast paler; a faint dusky blotch just behind lower part of eye; a large well-defined dark brown spot on upper part of opercle; body clouded with dark brown, with traces of longitudinal dusky lines along each row of scales; pectorals and ventrals dark gray; dorsal, anal, and caudal blue black, with narrow pale margins.

The other two specimens are essentially the same color as above, except that the smallest specimen is somewhat lighter than the other two.

LOBOTIDAE.

Lobotes pacificus Gilbert.

Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2857. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 100, pl. 14, fig. 28.

Two specimens $\frac{13}{16}$ and $\frac{14}{16}$ inches long from Station 4596, Lat. 16°, 47′ N.; Long. 100°, 27′ W.

The larger specimen has a general color of dark gray, mottled with darker; markings on head similar to those described by Gilbert; the stripe from eye downward and backward to gill-opening extends to behind the base of ventrals; a dark bar across front part of breast; ventrals dusky with pale inner margin;

soft dorsal and anal with white margins and three jet black spots size of pupil on the base of dorsal and two on base of anal; caudal with broad pale margin which occupies the terminal half of fin. The other specimen differs in having three spots at base of anal.

LUTIANIDAE.

Hoplopagrus guentherii Gill.

Proc. Acad. Nat. Sci. Phil., 1862, p. 253. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 101.

Two specimens $5\frac{1}{4}$ and $6\frac{1}{8}$ inches long from Acapulco. M. C. Z. 29698 (1 specimen).

Lutianus argentiventris (Peters).

Jordan, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 455. Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 374.
Mesoprion argentiventris Peters, Monatsb. K. Akad. Wiss. Berlin, 1869, p. 704.

Three specimens, M. C. Z. 29561, No. 3340, $7\frac{1}{2}$ inches long; No. 3360, $11\frac{3}{8}$ inches long; No. 3361, M. C. Z. 29646, $10\frac{1}{4}$ inches long, and three specimens 6 to $7\frac{1}{8}$ inches long, all from Acapulco. Two specimens, $7\frac{1}{2}$ and $7\frac{3}{4}$ inches long from Toboguilla Island, Panama Bay, from among coral.

Lutianus guttatus (Steindachner).

Jordan, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 456. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 103.
Mesoprion guttatus Steindachner, Sitzb. Ak. Wiss. Wien, 1869, **60**, p. 18, taf. 8.

Four specimens, M. C. Z. 29553, $4\frac{5}{8}$ to $6\frac{1}{4}$ inches long from Perico Island, Panama Bay, in two fathoms of water.

Thirteen specimens $3\frac{3}{8}$ to $4\frac{7}{8}$ inches long from Acapulco.

The black spot on the side in all our specimens is much larger than the eye. The following color note was found among the Acapulco specimens: — "Lower stripes and belly brassy; back stripes brown; ventrals and anal brown; dorsal and caudal with a red margin; central spot black; snout pinkish."

The dorsal and caudal margins are now dusky.

Lutianus aratus (Günther).

Jordan, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 457.
Mesoprion aratus Günther, Proc. Zool. Soc. London, 1864, p. 145.

One specimen $5\frac{3}{8}$ inches long from Perico Island, Panama Bay.

Lutianus marginatus (Cuvier & Valenciennes).

Day, Fishes of India, 1875, p. 44, pl. 13, fig. 4.
Diacope marginata Cuv. & Val., Hist. Nat. Poiss., 1828, **2**, p. 320 (425).

One specimen, No. 3311, $12\frac{1}{2}$ inches long from Rikitea, Manga Reva.

Head including flap 2.68 in length; depth 2.52; eye 4.85 in head; snout 2.86; maxillary 2.48; pectoral not reaching front of anal, 1.16 in head; deep opercular notch, with opercular knob moderate.

Rabirubia inermis (PETERS).

JORDAN, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 457, pl. 39.
Mesoprion inermis PETERS, Monatsb. K. Akad. Wiss. Berlin, 1869, p. 705.

Twenty-seven specimens, $2\frac{5}{16}$ to $5\frac{1}{8}$ inches long from Acapulco, shore. M. C. Z. 29444 (10 specimens).

These specimens show a dusky spot on upper base of pectoral; the upper and lower caudal ray pale, the lower paler, almost white; other outer rays of caudal with dusky area, wide at base, tapering to the tips of the lobes; a yellowish band at base of caudal; these colors are most distinct in the smallest specimens, gradually becoming less distinct in the largest specimens; on each of the specimens there is an oblong faint bluish, iridescent, or pearly spot, in most specimens extending from posterior angle of soft dorsal downward and forward to lateral line, in others lying parallel with and close to the lateral line; some specimens have a small spot of similar color on the top of caudal peduncle.

Xenocys jessiae JORDAN & BOLLMAN.

Proc. U. S. Nat. Mus., 1890, **12**, p. 160. SNODGRASS & HELLER, Proc. Wash. Acad. Sci., 1905, **6**, p. 375.

Five specimens, No. 3249–50, 3264–5, M. C. Z. 29639 and 3278, M. C. Z. 29711, $6\frac{1}{4}$ to $9\frac{1}{2}$ inches long from Wreck Bay, Chatham Island.

Xenichthys xanti GILL.

Proc. Acad. Nat. Sci. Phil., 1863, p. 82. GILBERT & STARKS, Mem. Cal. Acad. Sci., 1904, **4**, p. 103.

Four specimens $5\frac{3}{8}$ to $6\frac{7}{8}$ inches long from Perico Island, Panama Bay, in two fathoms of water. M. C. Z. 29421 (2 specimens).

This species is easily distinguished from *X. agassizii* by having a much shorter pectoral, and in our specimens, by the presence of very distinct lateral stripes, large black spot at base of caudal and in having the ventrals dusky only at tip. *Xenichthys agassizii* has a broad black outer margin to the ventrals.

Xenichthys agassizii STEINDACHNER.

Sitzb. Ak. Wiss. Wien, 1875, **72**, p. 34. (Beiträge, 3, p. 6.) SNODGRASS & HELLER, Proc. Wash. Acad. Sci., 1905, **6**, p. 376.

Five specimens, Nos. 3266–70, $6\frac{1}{2}$ to 8 inches long, and one specimen (without tin tag) $4\frac{3}{4}$ inches long from Wreck Bay, Chatham Island. Nos. 3269–70, M. C. Z. 29644, 29647 (2 specimens).

Caesio tile Cuvier & Valenciennes.

Hist. Nat. Poiss., 1830, **6**, p. 322 (428). Günther, Fische der Südsee, 1874, **2**, p. 34.

Six specimens $5\frac{1}{16}$ to $5\frac{13}{16}$ inches long from Manga Reva, coral. M. C. Z. 29411 (3 specimens).

The following life color note was found with the specimens: — "Lower parts bright red, fading to silvery; upper, greenish blue, becoming purple in formalin."

Opercle and subopercle are scaly; in other respects our specimens agree with Steindachner's description of *C. multiradiatus* (Verh. Zool. Bot. Gesellsch. Wien, 1861, **11**, p. 175, fig. 1). Günther, (*loc. cit.*) places *C. multiradiatus* in synonymy of *C. tile*, giving the range of soft dorsal rays as 17–21; while our specimens do not show the same range (being 20–22), we assume that Günther had more material and therefore accept his identification.

HAEMULIDAE.

Haemulon sexfasciatum Gill.

Proc. Acad. Nat. Sci. Phil., 1862, p. 254. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1294.

Eight specimens from Acapulco, one, No. 3366, $7\frac{7}{8}$ inches long and seven, $3\frac{1}{4}$ to $4\frac{1}{2}$ inches long.

A $4\frac{1}{2}$ inch specimen has the head 2.80 in length without caudal; depth 2.63; eye 3.40 in head; snout 3.09; maxillary 2.61, reaches about half way between margin and pupil of eye; dorsal XI–I, 17; anal III, $10\frac{1}{2}$, 2nd anal spine reaches somewhat beyond the tip of the third; scales 10–51–14, counted perpendicularly from lateral line to origin of dorsal 7, counted obliquely 10, from origin of anal vertically up to lateral line 12, obliquely upward and forward 14, the series above lateral line counted longitudinally.

A $3\frac{1}{4}$ inch specimen has head 2.82 in length; depth 2.76; eye 2.87 in head; snout 3.28; maxillary 2.77; dorsal XI–I, 16; anal III, $10\frac{1}{2}$; scales 10–51–14, counted as above.

Another specimen has dorsal XI–I, 17; anal III, $9\frac{1}{2}$; 2nd anal spine longer than 3rd; maxillary reaches beyond front of eye.

A 4th specimen has dorsal XI–I, 17; anal III, $10\frac{1}{2}$; maxillary reaches to front of pupil.

A 5th has dorsal XI–I, $16\frac{1}{2}$; anal III, $9\frac{1}{2}$; maxillary reaches nearly to front of pupil; 2nd anal spine longer than 3rd.

A 6th has dorsal XI–I, 17; anal III, $10\frac{1}{2}$; 2nd anal spine longer than 3rd; maxillary reaches front of pupil.

A 7th has dorsal XI–I, $16\frac{1}{2}$; anal III, $10\frac{1}{2}$; 2nd anal spine longer than 3rd; maxillary reaches front of pupil.

Two specimens $2\frac{1}{2}$ to $2\frac{3}{8}$ inches long from Acapulco. A black stripe extending from tip of snout through eye and along axis of body, terminates in a large black spot along caudal peduncle and base of caudal fin; below the base of caudal fin the cross-bars extend a short distance; a second black stripe from its junction with a similar stripe on the nostril in front of the eye, extends along the side of back to middle of soft dorsal joining its fellow at end of fin and continuing as a single stripe along top of caudal peduncle.

One specimen $2\frac{1}{2}$ inches long from Acapulco. M. C. Z. 29452 (3 specimens).

Haemulon scudderi Gill.

Proc. Acad. Nat. Sci. Phil., 1862, p. 253. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 104.

One specimen, No. 3314, 9 inches long from Acapulco.

Three specimens $3\frac{3}{8}$ to 7 inches long from Perico Island, Panama Bay. M. C. Z. 29563 (2 specimens).

Haemulon steindachneri (Jordan & Gilbert).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1301.
Diabasis steindachneri Jordan & Gilbert, Bull. U. S. Fish. Comm., 1882, **1**, p. 322.

Nine specimens from Acapulco, No. 3367, M. C. Z. 29662, $6\frac{3}{4}$ inches long; No. 3315, $7\frac{3}{4}$ inches long and the remaining seven, M. C. Z. 29565, (untagged) $3\frac{1}{4}$ to $5\frac{1}{4}$ inches long. Four specimens $4\frac{1}{2}$ to $5\frac{5}{8}$ inches long from Perico Island, Panama Bay.

Lythrulon flaviguttatum (Gill).

Jordan, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 459.
Haemulon flaviguttatus Gill, Proc. Acad. Nat. Sci. Phil., 1862, p. 254.

Five specimens (young) $2\frac{1}{4}$ to $2\frac{3}{4}$ inches long from Acapulco. M. C. Z. 29434 (1 specimen).

One specimen $3\frac{3}{4}$ inches long from Perico Island, Panama Bay.

Orthostoechus maculicauda Gill.

Proc. Acad. Nat. Sci. Phil., 1862, p. 255. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 106.

Two specimens, Nos. 3364–5, $8\frac{1}{4}$ and $9\frac{1}{8}$ inches long, and seventeen specimens 2 to $6\frac{1}{2}$ inches long, all from Acapulco. M. C. Z. 29406 (1 specimen), 29454 (1 specimen), No. 3364, M. C. Z. 29641 (1 specimen).

In the longest specimen dorsal XIII, $15\frac{1}{2}$; anal III, $9\frac{1}{2}$; caudal blotch more elongate than in our other specimens.

2nd specimen, dorsal XIII, $16\frac{1}{2}$; anal III, $10\frac{1}{2}$.

3rd specimen, dorsal XIII, $16\frac{1}{2}$; anal III, 11.

4th specimen, dorsal XIII, $16\frac{1}{2}$; anal III, $10\frac{1}{2}$.

5th specimen, dorsal XIII, $14\frac{1}{2}$; anal III, $10\frac{1}{2}$.

Anisotremus interruptus Gill.

Proc. Acad. Nat. Sci. Phil., 1861, p. 266. Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 377.

A specimen, No. 3338, $15\frac{3}{8}$ inches long from Acapulco.

Head 3.04 in length without caudal; depth 2.32; eye 4.44 in head; preorbital at narrowest place 5.28 in eye; scales from origin of dorsal downward and backward to lateral line 8, counting one in the lateral line; from lateral line downward and backward to anal 13; in lateral line 52; dorsal X, I, $17\frac{1}{2}$; anal III, 9; pectoral 3.09 in length, extending to a line from base of 7th dorsal ray. Scales above lateral line forward are no larger than they are below.

Anisotremus caesius (Jordan & Gilbert).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1316.
Pomadasys caesius Jordan & Gilbert, Proc. U. S. Nat. Mus., 1882, **4**, p. 383.

Two specimens, Nos. 3378–9, $7\frac{3}{8}$ and $7\frac{3}{4}$ inches long from Acapulco. Gilbert and Starks (Mem. Cal. Acad. Sci., 1904, **4**, p. 107) state that the maxillary, in their specimens, reaches the middle of eye, instead of not quite to front of eye. In our specimens it just about reaches the front of eye.

Anisotremus surinamensis (Bloch).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1318.
Lutjanus surinamensis Bloch, Ausl. Fische, 1791, **5**, p. 3, Atlas, pl. 253.

A specimen, No. 3215, M. C. Z. 29671, $12\frac{1}{4}$ inches long from Wreck Bay, Chatham Island.

Head 2.97 in length without caudal; depth 2.23; eye 4.66 in head; preorbital at narrowest place 5.60; scales from origin of dorsal downward and backward to lateral line 9, in a perpendicular series 7; from lateral line downward and backward to anal 13; in lateral line 52; dorsal XII, I, 16; anal III, 9; pectoral 3.21 in length, reaches a line from base of 13th dorsal spine; scales a little larger anteriorly above lateral line, than they are below. The pectoral in this species is not so long as in *A. interruptus* and the eye is smaller.

Another specimen No. 3216, $13\frac{1}{2}$ inches long from Wreck Bay, Chatham Island.

Head 3.09 in length without caudal; depth 2.39; eye 4.84 in head; preorbital at narrowest place 5.41; scales from origin of dorsal downward and backward to lateral line 9 counting one in lateral line; in a perpendicular series $6\frac{1}{2}$; from lateral line downward and backward to anal 13; in lateral line 52; dorsal XI, I, 16; anal III, 9; pectoral 3.27 in length reaches a line from base of 12th dorsal spine.

Three young examples $2\frac{3}{4}$ to $3\frac{1}{4}$ inches long from Acapulco.

Orthopristis chalceus (Günther).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1338.
Pristipoma chalceum Günther, Proc. Zool. Soc. London, 1864, p. 146.

One specimen, No. 3111, M. C. Z. 29625, $9\frac{3}{4}$ inches long from Perico Island.

One specimen, No. 3112, 9 inches long from Panama.

Gnathodentex aureolineatus (Lacépède).

Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 269.
Sparus aurolineatus Lacépède, Hist. Nat. Poiss., 1802, **4**, p. 132.

Seven specimens, 4 to $6\frac{3}{4}$ inches long from Manga Reva.

Five specimens $6\frac{3}{4}$ to $8\frac{3}{8}$ inches long, Nos. 3300–4, M. C. Z. 29704, 29705, from Manga Reva.

SPARIDAE.

Lethrinus rostratus Kuhl & Van Hasselt.

Cuv. & Val. Hist. Nat. Poiss., 1830, **6**, p. 220 (296). Günther, Cat., 1859, **1**, p. 454.

One specimen, No. 3312, 24 inches long, from Rikitea, Manga Reva.

It has the following measurements: — head 2.78 in length; depth 3.14; eye 7.11 in head; snout 1.65; preorbital, measured from eye to corner of mouth 2.80; pectoral equals ventral and is 1.81 in head; dorsal X, $9\frac{1}{2}$; anal III, $8\frac{1}{2}$; caudal deeply forked; scales 7–50–16.

The specimen shows no distinct black blotch above the pectoral fin; color of the body is pale yellowish, with brown margins to the scales which vary in width in different parts giving the specimen an irregularly barred or coarsely mottled appearance; head plain brown; fins plain.

GERRIDAE.

Eucinostomus californiensis (Gill).

Jordan, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 469. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 113.
Diapterus californiensis Gill, Proc. Acad. Nat. Sci. Phil., 1862, p. 245.

A specimen, No. 3261, $7\frac{3}{4}$ inches long from Wreck Bay, Chatham Island.

Pectoral reaches beyond vent.

Four specimens, M. C. Z. 29566, $3\frac{1}{2}$ to $4\frac{1}{4}$ inches long from Perico Island.

Twelve specimens, $1\frac{1}{4}$ to $4\frac{1}{8}$ inches long from Naos Island, Panama Bay, on sandy beach in seine.

Fourteen specimens, $\frac{7}{8}$ to $4\frac{1}{4}$ inches long, from Acapulco. M. C. Z. 29425. February 28, 1905.

Xystaema cinereum (Walbaum).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1372.
Mugil cinereus Walbaum, Artedi Piscium, 1792, p. 228.

A specimen, No. 3368, $13\frac{1}{2}$ inches long from Acapulco.

Gerres peruvianus Cuvier & Valenciennes.

Hist. Nat. Poiss., 1830, **6**, p. 467. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 115.

A specimen, No. 3135, $9\frac{3}{4}$ inches long from Panama.

The second dorsal and second anal spines are broken. There is an indication of a black margin to the spinous dorsal; dorsal X, 9.

KYPHOSIDAE.

Doydixodon freminvillei Valenciennes.

Voy. Venus, 1855, **5**, p. 323, pl. 5. Starks, Proc. U. S. Nat. Mus., 1906, **30**, p. 792, pl. 66, fig. 1.

One specimen, No. 3207, $18\frac{5}{8}$ inches long, probably from Wreck Bay, Chatham Island.

Head 3.29 in length without caudal; depth 2.26; eye 6.5 in head; interorbital 2.16; dorsal XII, $19\frac{1}{2}$; anal III, 12. Valenciennes (*loc. cit.*) in his figure shows only 12 anal rays, but in the description says there are 15. The scales 9, counted downward and forward from front of soft dorsal to and including lateral line, downward and backward 9, from lateral line down and back to front of anal 16, down and forward 15, in longitudinal series 51; opercular membranes and base of pectoral are black; a wavy vertical line of darker color than scale across each scale. Spines of dorsal and anal heteracanthous.

Thirty-seven specimens of young $\frac{11}{16}$ to $1\frac{3}{16}$ inches long from Chatham Island shore, January 9, 1905. M. C. Z. 29544 (12 specimens).

Kyphosus elegans (Peters).

Evermann & Jenkins, Proc. U. S. Nat. Mus., 1891, **14**, p. 155. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1387. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 116.
Pimelepterus elegans Peters, Monatsb. K. Akad. Wiss. Berlin, 1869, p. 707.

Two specimens, Nos. 3350–51, $9\frac{1}{4}$ and $11\frac{1}{8}$ inches long from Acapulco. No. 3350, M. C. Z. 29640 (1 specimen).

Three specimens, Nos. 3148–49–50, $9\frac{1}{4}$, $8\frac{3}{4}$ and $10\frac{1}{8}$ inches long from Toboguilla Island, Panama Bay. M. C. Z. 29617 (1 specimen).

The specimens from Acapulco differ somewhat from those from Toboguilla Island, which are here provisionally identified with those from Acapulco. The Acapulco specimens from geographical considerations should be most like typical *K. elegans*, which came from Mazatlan, but they differ from the description given by Jordan and Evermann (*loc. cit.*), in having 12 anal rays instead of 11, larger eye, longer snout and maxillary, and somewhat longer pectoral; and also in having 13 dorsal rays instead of 12.

Gilbert and Starks (*loc. cit.*), in their remarks on specimens they have identified as *K. elegans*, call attention to this difference in the fin rays. The Acapulco specimens differ also from those from Toboguilla in having a somewhat shorter head, smaller eye, slightly shorter maxillary, and a longer anal base. In the Toboguilla specimens the snout is somewhat more vertical, the forehead is a little more prominent and the throat somewhat concave in outline, which in the Acapulco specimens is nearly in line with the ventral curve.

Proportional measurements of two specimens from Acapulco.

Total length in inches	$9\frac{1}{4}$	$11\frac{1}{8}$
Head	3.70	3.66
Depth	1.97	2.02
Eye	3.57	3.64
Snout	3.12	2.81
Maxillary	3.12	2.95
Pectoral	1.42	1.44
Base of anal	1.19	1.21
Scales	10–66–16	9–68–16
Dorsal	XI, 13	XI, 13
Anal	III, 12	III, 12

Proportional measurements of three specimens from Toboguilla.

Total length in inches	$9\frac{1}{4}$	$8\frac{3}{4}$	$10\frac{1}{8}$
Head	3.55	3.43	3.38
Depth	2.08	2.03	2.03
Eye	3.40	3.40	3.53
Snout	2.83	3.	2.86
Maxillary	2.91	3.	2.86
Pectoral	1.41	1.46	1.50
Base of anal	1.24	1.24	1.39
Scales	9–68–16	9–68–16	9–68–16
Dorsal	XI, 13	X, 13	XI, 13
Anal	III, 12	III, 2	III, 12

We also have another specimen $6\frac{1}{2}$ inches long from Toboguilla Island October 28, 1904.

Kyphosus cinerascens (Forskål).

Sciaena cinerascens Forskål, Descript. Anim., 1775, p. 53.

Two specimens, Nos. 3182 and 3183, M. C. Z. 29643, $19\frac{1}{4}$ and 13 inches long from Cook Bay, Easter Island.

No. 3183 has head 3.93 in length; depth 2.45; eye 4.54 in head; snout 2.70; maxillary 2.94; pectoral 1.31; longest anal ray 1.75, in base of fin 1.14; base of anal fin 1.38 in head; middle ray caudal fin 4; upper caudal lobe nearly equal to head, 4.01 in length of body; dorsal XI, 12; anal III, 11; scales 9–76 + –16 (19). The scales counted from anal upward and backward to lateral line are in sixteen rows, counted upward and forward are in nineteen rows; in the above formula they were counted vertically from lateral line to front of soft dorsal; most of incisor teeth are rounded at ends with conspicuous roots; the spines of dorsal and anal are heteracanthous. Scales on cheek in eleven rows.

No. 3182 has head 3.84 in length; depth 2.19; eye 4.06 in head; snout 2.96; maxillary 3.25; pectoral 1.30; longest anal ray 1.73, in base of fin 1.16; base of anal 1.38 in head; middle ray of caudal 3.09; upper caudal lobe 3.38; dorsal XI, 12; anal III, 11; scales counted as above 10–78–17 (20); teeth and spines as in No. 3183; scales on cheek in eleven rows. Of the two specimens the larger resembles more closely the figure in Ruppell's Neue Wirbelthiere, but it has a somewhat longer maxillary; the snout is longer than in the smaller specimen and not so steep; it is slightly concave below the gibbosity, while in the smaller it is evenly convex.

Girella nebulosa, sp. nov.

Plate 3, fig. 2, Plate 4, figs. 1, 2.

Type No. 65511, U. S. N. M. (Field no. 3179), a specimen 11.37 inches long from Cook Bay, Easter Island.

Head 3.85 in length; depth 2.04; eye 3.81 in head; snout 2.34; interorbital 2.54; length of pectoral 0.93; ventral 1.05; thirteenth dorsal spine longest, 2.17; height of soft dorsal 1.84; length of ventral 1.08; dorsal XVI, 12; anal III, 10; scales 16–85–25, 11 or 12 scales in transverse series counting downwards and backwards from origin of dorsal to lateral line and about 25 downward and backward from lateral line to front of anal; the transverse row of scales counted to base of caudal; scales of body finely ctenoid; about seven rows of cycloid scales on cheek; a narrow band of about three rows of scales connecting

the scales on nape with those on cheeks; upper edge of opercle scaly, rest of head naked; membranes of all the fins scaly nearly to their margins; caudal fin emarginate; upper lobe slightly longer. Teeth broad, incisor-like, those on sides somewhat narrower and indistinctly trilobate; in front of the main series and close to them are supernumerary teeth, these not in a continuous series, but lying in front of every second or third tooth of the main series and are considerably shorter than those in main series.

M. C. Z. 29450 (2 specimens), 29547 (6 specimens).

Color in alcohol: — general color brownish gray, clouded with dark brown; top of head dark brown, grayish below; a dark band across chin; fins dark brown, pectoral and ventral faintly clouded with darker.

A cotype 4.25 inches long from Easter Island, shore, has head 3.66 in length without caudal; depth 2.57; eye 3.42 in head; snout 2.82; interorbital 2.82; dorsal XVI, 12; anal III, 10; scales 16–85–25.

General color brownish gray, head darker, coarsely clouded with dark brown; mottlings tending to form cross-bars, those on middle of body more distinct; pectoral gray with dusky rays, the other fins dark brown; the dorsals show faint traces of spots; dusky bar across chin; another fainter across throat; some faint mottlings on breast.

Teeth of lower jaw in front, incisor-like, only faintly showing notches, those on sides of lower jaw and all on upper distinctly trilobate; the teeth on each jaw in a single series.

Another cotype, No. 3180, M. C. Z. 29658, 9.37 inches long from Cook Bay, Easter Island, has head 4 in length; depth 2.30; eye 3.84 in head; snout 2.50; interorbital 2.77; dorsal XV, 13; anal III, 10; scales 16–89–25.

General color same as in 4.25 inch specimen; mottled everywhere with brown, but there are no traces of cross-bars.

Movable teeth in a single series, mostly trenchant, some, however, showing traces of three lobes.

Twenty-six specimens .75 to 1.5 inches long from La Perouse Bay, Easter Island, December 17, 1904, shore.

Of these three have dorsal XV, 12; one has dorsal XV, 13; 5 have dorsal XVI, 11; 14 have dorsal XVI, 12 and 3 have dorsal XVI, 13; the anal is constantly III, 10.

The 1.5 inch specimen has head 3.20 in length; depth 3.20; eye 3.33 in head; snout 3.33; interorbital 4; dorsal XVI, 11; anal III, 10. Two specimens $2\frac{3}{4}$ and $3\frac{7}{16}$ inches long from the same place.

Six specimens $\frac{3}{4}$ to $1\frac{3}{8}$ inches long from shore of Easter Island, December 20, 1904.

General color, iridescent gray with nine purplish brown cross-bands, wider above, tapering toward ventral surface, these about .5 diameter of eye at top; interspaces thickly spotted with brown, many of these coalescing into irregular shaped areas; two longitudinal rows of comparatively large spots on interspinous membranes of dorsal, the first through middle of fin, the second near base; three or four rows of smaller spots on basal half of soft dorsal and anal; a few small faint spots on basal portion of caudal; pectoral pale; ventral dusky; outer margin of vertical fins dusky; teeth trilobate.

The stomach is gizzard-like, peritoneum black, underlaid with silvery; owing to the bad condition of the viscera the pyloric coeca are difficult to count but there are probably not over twenty; air bladder divided into two horns posteriorly; in one of the specimens examined the stomach and intestines were filled largely with a calcareous Alga (Corallina); a few diatoms, other algae and small gastropods were also present. These specimens apparently differ from current descriptions of Girella and Tephraeops in lacking an inner band of smaller teeth on jaws and in having in the largest specimen (type) a number of smaller supernumerary teeth outside of and closely attached to the regular series.

MULLIDAE.

Upeneus xanthogrammus Gilbert.

Proc. U. S. Nat. Mus., 1892, **14**, p. 553. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt. 1, p. 860.

One example, No. 3321, $8\frac{7}{8}$ inches long from Acapulco.

Pseudupeneus multifasciatus (Quoy & Gaimard).

Jordan & Evermann, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 256, pl. 22.
Mullus multifasciatus Quoy & Gaimard, Voy. Uranie. Zool. 1825, p. 330, pl. 59, fig. 1.

A specimen, No. 3196, $11\frac{1}{4}$ inches long from Cooks Bay, Easter Island.

Dorsal VIII, I, 8; anal I, 6; scales 3–29–6; head 2.95 in length; depth 2.87; eye 5.71 in head; snout including upper lip 1.70, not including upper lip 1.77; maxillary *plus* premaxillary 2.28; width of maxillary 2.12 in its length; origin of barbel to angle of preopercle 1.63 in head; length of barbel 1.70 in head; longest dorsal spine, 3rd, 1.95; longest ray 2.85, last ray 4; longest anal ray, 1st, 2.66, last ray 3.48; caudal lobes rather short, upper slightly longer

1.42 in head; pectoral 1.40; ventral 1.38, inserted slightly in advance of pectoral, the latter reaches slightly farther back than ventral, neither reaches vent.

Color in alcohol: — ground color of the head greenish gray, of the body yellowish; posterior part of cheek dusky; vertical margin of preopercle and around the eye blackish; dusky mottling on posterior of opercle, behind the eye and on top of head; a continuous dusky area from front of spinous dorsal along back to a little beyond last ray of soft dorsal; irregular dusky spots in front of spinous dorsal or with a mottled appearance from nape to pectoral; irregular dusky spots on the scales, from soft dorsal to lateral line, faintly indicating a band; another one below the soft dorsal and still another just posterior to soft dorsal; end of caudal peduncle and caudal fin dusky; an irregular broad, diffuse, dusky area between lateral line and belly, extending from head and disappearing on caudal peduncle, most intense in a line with the above mentioned bands; on each of the four rows of scales, between the lateral line and the lower base of pectoral there is an irregular narrow diffuse longitudinal dusky stripe, most intense on anterior margin of each scale; axil of pectoral blue-black; pectoral pale yellow; ventrals pale yellow, outer rays dusky above; anal with traces of dusky bars; membranes of both dorsals dusky; barbels yellow.

Our specimen agrees most nearly with Günther's description and figure of *Upeneus trifasciatus* (Fische der Südsee, 1874, **3**, p. 59, taf. 44, fig. B).

Mulloides auriflamma (Forskål).

Jordan & Evermann, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 250, fig. 103.
Mullus auriflamma Forskål, Descript. Anim., 1775, p. 30.

No. 3291, a specimen $11\frac{1}{2}$ inches long from Rikitea, Manga Reva.

Mulloides samoensis Günther.

Fische der Südsee, 1874, **3**, p. 57, pl. 43, fig. B. Jordan & Evermann, Bull. U. S. Fish Comm., 1905, **23**, pt. 1, p. 253.

One specimen, No. 3292, $6\frac{1}{2}$ inches long from Rikitea, Manga Reva.

Muloides rathbuni (Evermann & Jenkins).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1896, pt.1, p. 857; 1900, pt. 4, pl. 132, fig. 361.
Upeneus rathbuni Evermann & Jenkins, Proc. U. S. Nat. Mus., 1891, **14**, p. 158, pl. 2, fig. 4.

Eighteen specimens $4\frac{1}{4}$ to 8 inches long from Acapulco. M. C. Z. 29443 (8 specimens).

Actual and proportional measurements of largest and smallest specimens.

	Actual measurements	Proportional measurements	Actual measurements	Proportional measurements
Total length in inches	8		4¼	
Standard length	165 mm.		92	
Head	51	3.22	27	3.40
Depth	45	3.66	19	4.84
Eye	14	3.64	7½	3.60
Snout	23	2.21	11	2.45
Maxillary	16	3.18	8	3.37
Interorbital	14	3.64	7	3.85
Barbel	35	1.45	17	1.58
Pectoral	34	1.50	16	1.68
Ventral	23	2.21	17	1.58
1st dorsal spine	29	1.75	15½	1.74
Longest dorsal ray	21	2.42	10	2.70
Longest anal ray	19	2.68	10	2.70
Base of dorsal	19	2.68	10	2.70
Base of anal	14½	3.51	8	3.37
Dorsal	VII–I, 8		VII–I, 8	
Anal	I, 7		I, 6	
Scales above lateral line	2½		2½	
Scales below lateral line	6		6	
Scales in lateral line	40		40	

In our specimens the anal has from 6–7 rays. The statement of size of eye by Jordan and Evermann (*loc. cit.*) is probably a mistake. The figure shows a smaller eye and but VII dorsal spines. We have examined the Type and it has seven spines. All but one of our specimens have seven spines in the first dorsal and that one apparently has but six.

SCIAENIDAE.

Isopisthus remifer Jordan & Gilbert.

Bull. U. S. Fish. Comm., 1882, **1**, p. 320. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 117.

One specimen, No. 3134, 9½ inches long from Panama Bay.

Head 3.23 in length; depth 4.14; eye 4.57 in head; snout 4; maxillary 2.06; pectoral 1.33; dorsal VII–I, 21; anal II, 17; scales 87.

Corvula macrops (Steindachner).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1427.
Corvina macrops Steindachner, Sitzb. Ak. Wiss. Wien, 1875, **72**, p. 52, fig. 2. (Beiträge, 3, p. 24.)

Five specimens, Nos. 3380–4, 5⅞–6¼ inches long from Acapulco. No. 3383, M. C. Z. 29618, No. 3384, M. C. Z. 29706.

Ophioscion perissa (HELLER & SNODGRASS).

Plate 4, fig. 3.

Sciaena perissa HELLER & SNODGRASS, Proc. Wash. Acad. Sci., 1903, **5**, p. 197.

One specimen, No. 3253, $7\frac{1}{4}$ inches long from Wreck Bay, Chatham Island.

Micropogon altipinnis GÜNTHER.

Proc. Zool. Soc. Lond. 1864, p. 149. GILBERT & STARKS, Mem. Cal. Acad. Sci., 1904, **4**, p. 132.

One specimen $3\frac{1}{4}$ inches long from Panama market.

Dorsal XI–I, 21; anal II, 8.

Polyclemus goodei (GILBERT).

GILBERT & STARKS, Mem. Cal. Acad. Sci., 1904, **4**, p. 135, pl. 20, fig. 40, 40a.
Paralonchurus goodei GILBERT, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1480.

One specimen $2\frac{1}{2}$ inches long from Panama market.

Eques fuscovittatus, sp. nov.

Plate 5, fig. 1.

One specimen, the Type, No. 65494, U. S. N. M., 7.37 inches long from Acapulco.

Length to base of caudal 158 mm.; head 3.16 in length without caudal; depth 2.90; eye 3.84 in head; snout 3.33; maxillary 2.63; interorbital 4.16; dorsal X–I, 37; anal II, 7; scales about 75; gillrakers 3+14.

Color: centres of scales on body and head grayish, their edges brownish, giving the specimen a brownish gray appearance; seven narrow longitudinal dark brown stripes, alternating with interrupted stripes of the same color on body; lowermost entire stripe runs from just below eye to base of last anal ray and extends faintly on lower edge of caudal peduncle; second beginning at lower posterior margin of eye, extending across upper base of pectoral, fading out on caudal peduncle; third beginning at middle of posterior margin of eye and extending to middle of base of caudal; fourth extending from upper margin of eye to base of last ray of dorsal; fifth extending from front of nape to base of fifth soft dorsal ray, thence along base of dorsal; sixth originating on shoulder and following a more or less irregular course to base of seventeenth dorsal ray, thence along base, joining fifth at 25th ray; seventh commencing on front of nape in common with fifth and following an irregular course to base of ninth dorsal ray, thence along base of fin joining sixth; a dark stripe extending along

the ridge of nape; fins dark brown; spinous dorsal with a wide almost white margin; soft dorsal, anal, and caudal with a narrow white margin; ventral and pectoral tipped with white (probably yellow in life).

This species is near the Atlantic species, *E. acuminatus*, but has a longer snout and greater number of scales in lateral line.

POMACENTRIDAE.

Azurina upalama Heller & Snodgrass.

Proc. Wash. Acad. Sci., 1903, **5**, p. 198, pl. 5. Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 385.

Seven specimens 4 to $4\frac{5}{8}$ inches long from Chatham Island shore. M. C. Z. 29536 (3 specimens).

Pomacentrus rectifraenum Gill.

Proc. Acad. Nat. Sci. Phil., 1862, p. 148. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 140.

Gilbert and Starks (*loc. cit.*) state that in this species there are constantly 15 soft dorsal rays and 13 anal rays, the last split ray being in each case, reckoned as one. They also state that in Gill's description of the types of *P. rectifraenum*, he assigns to it 16 dorsal rays and 15 anal rays and it is reasonable to suppose that the split ray at the end of each fin was, by him, reckoned as two rays. In our description, we have followed the latter plan.

Four large specimens, $4\frac{3}{4}$ to $5\frac{7}{8}$ inches long from Acapulco.

Nine large specimens, $3\frac{1}{2}$ to $6\frac{1}{4}$ inches long from Toboguilla Island, among rocks in two fathoms of water. M. C. Z. 29448 (2 specimens).

The Acapulco specimens have uniformly 16 dorsal rays and 14 anal rays. Five of the Toboguilla specimens have 16 dorsal rays and four have 15 dorsal rays; six have 14 anal rays and three have 15 anal rays.

The above specimens show the following colors: — General color dark brown, darker on top of head, lighter on breast and belly; margin of upper lip and whole of lower lip pale; the scales of sides of body have dark-margins, forming transverse lines; dorsal, ventral, anal, and caudal blue-black; pectoral with dusky rays, paler membranes forming a dark olive shade, the two upper rays are paler, base of pectoral brown body color with a small black spot at base of 1st ray, a white bar, widest at the top, extending across base of the rays behind, this bar sharply separating the dusky pectoral from its brown base. These specimens show no traces of pearly spots.

Nine specimens $2\frac{3}{8}$ to $3\frac{7}{16}$ inches long from Perico Island, Panama Bay.

Of these, eight have 16 dorsal rays and one has 17 dorsal rays; the anals have uniformly 14 rays.

These specimens show the following colors: — all more or less spotted with pale blue or pearly spots; the three larger ones with no spots on body and fewer and fainter spots on head and fins; some of the smaller specimens similarly marked; the posterior margins of body scales dusky, forming narrow transverse lines; in some of the smaller specimens, in addition to the dusky marks there is a pale blue curved bar on each scale on side of body becoming spots on back and belly and forming alternating transverse lines with the darker margins below lateral line and long lines following rows of scales above lateral line; the spots on the side of the head are irregular in size and arranged approximately in series downward and forward towards the isthmus: two lines formed of these spots under the eye, one just below suborbital following its curve to corner of mouth, one under eye and parallel with its margin on the suborbital, a short line extends from front of eye forward to edge of preorbital; a light blue line on upper part of eye; a line of coalescent spots extending from tip of snout back over eye to front of spinous dorsal, a series of fainter spots between these on the median line, such spots occurring also on soft dorsal and anal and following the row of scales; in the smaller specimens a small black spot on caudal peduncle just back of the angle of soft dorsal; several specimens with a large pearly spot on angle of dorsal and anal; none of these showing traces of black spot or ocellus on anterior base of soft dorsal; a small black spot on upper base of first ray of pectoral. In these specimens the pectoral fins are pale, agreeing with the larger specimens in the markings behind pectoral.

Three specimens $1\frac{7}{8}$ to 2 inches long from Perico Island, Panama Bay. These specimens are like the preceding except that they show traces of the black spot on anterior base of soft dorsal.

Two specimens $2\frac{3}{4}$ to $3\frac{1}{8}$ inches long from Toboguilla Island, Panama Bay, among coral in two fathoms of water.

These have 16 dorsal and 14 anal rays. They are similar in color to the larger specimens but show a few pearly spots on sides of head.

Seven specimens $1\frac{3}{8}$ to $2\frac{11}{16}$ inches long from Acapulco. M. C. Z. 29568 (4 specimens).

Of these, all have 16 dorsal rays; six have 14 anal rays and one has 13 anal rays.

These specimens have the general color of the Perico Island specimens, but the three largest show traces of a black spot on the anterior base of soft dorsal;

the smaller ones show distinct black spots on anterior base, each surrounded by pearly spots giving the appearance of an ocellus.

Pomacentrus gilli Gilbert & Starks.

Mem. Cal. Acad. Sci., 1904, 4, p. 141, pl. 22, fig. 44.

Three specimens $2\frac{7}{8}$ to $4\frac{3}{4}$ inches long from Acapulco.

All have dorsal rays 15, one has anal rays 14, and two have them 13.

Five specimens M. C. Z. 29567, $2\frac{7}{8}$ to $4\frac{5}{8}$ inches long from Perico Island. All have dorsal rays 15, and anal 13.

Six specimens $2\frac{1}{2}$ to $3\frac{3}{4}$ inches long from Toboguilla Island, among coral in two fathoms of water. Of these five have dorsal rays 15, and six have anal 13, one has dorsal 16.

One specimen, M. C. Z. 29453, $2\frac{1}{4}$ inches long from Perico Island. This has 15 dorsal rays and anal 13.

The three specimens from Acapulco have general color brown, the posterior edges of scales darker, forming transverse lines on sides of body; faint pale spots on sides of head, none on front of head or nape, both lips pale; no blue line on top of eye; a few pale spots on soft dorsal, anal, and caudal; pectoral very pale and translucent with no distinct spot at base of upper ray, base darker than body color both in front and behind; no distinct white bar on base of pectoral rays behind; in the two larger specimens no trace of spot or ocellus on anterior base of soft dorsal; a large black spot on anterior base of soft dorsal in smallest specimen; in the two larger specimens the posterior margin of soft dorsal and anal paler; in smaller specimen, posterior margins of these fins abruptly pale; a small black spot on upper base of caudal peduncle.

The five specimens from Perico Island are similar in color to the above but slightly paler; the spots on head more distinct; none show pale spots on rays of soft dorsal, anal, or caudal; all have some pale spots on scaly base of anal; the two larger specimens show very slight traces of paler posterior margins to dorsals and anals. On the two next in size this is more distinct and on the smallest it is abruptly paler, none showing traces of spot or ocellus on soft dorsal, or spot on top of caudal peduncle. The largest one shows no white spot on axil of dorsal or anal. The next in size has a spot on base of posterior rays of anal, the others having these in axil of both fins, that of anal extending on to rays.

The six specimens from Toboguilla are similar in color, all but one darker than the preceding; spots on head very distinct; the smallest is pale with distinct spot at base of first pectoral ray; outer margin of vertical fins dusky

with a faint inner pale band; traces of pearly spots on scaled base of anal and on belly and posterior part of body, but none of these spots are present in the larger specimens.

The one specimen from Perico Island is similar in color to the paler forms above described; spots on side of head distinct; no spot on caudal peduncle; fins same color as body; pale spot in axil of dorsal and anal.

Comparative Measurements.

	Pomacentrus rectifraenum	*Pomacentrus gilli.*
Total length	94 mm.	94 mm.
Head	3.13	3.13
Depth	1.77	1.88
Eye	3.33	3.52
Preorbital, between eye and corner of mouth	4.28	5.42
Maxillary	3.33	3.15
Interorbital	2.72	3.15

Gilbert and Starks (*loc. cit.*), state that *P. gilli* is closely related to *P. rectifraenum* but differing constantly in the uniformly translucent pectoral, larger eye, narrower and flatter interorbital space, narrower preorbital, which is serrated to a point opposite to or in advance of the angle of the mouth, and in the shorter dorsal and anal fins.

In the specimens which we have identified as these two species we find that all the above characters do not hold. In many of the smaller specimens of *P. rectifraenum*, the pectorals are translucent; the eye is not constantly larger in *P. gilli*; the interorbital space agrees in being narrower in *P. gilli*, but the difference in flatness in the two can not always be distinguished; while in the larger specimens the preorbital is somewhat narrower in *P. gilli*. This character is hard to distinguish in the small specimens and the preorbital serrations are variable and are of no importance as a means of separating the two species. Out of thirty-four specimens of *P. rectifraenum* we have one specimen in which there are 13 rays in the anal; out of fifteen specimens of *P. gilli* we have one with 16 dorsal rays and one with 14 anal rays. These are probably individual variations and in general would not effect the separation of the species, since this variation does not affect both dorsal and anal in the same specimen. In our specimens, the presence of accessory scales upon the top of head and between eyes in *P. rectifraenum* and their absence in *P. gilli* seems to furnish a distinguishing character, particularly in the larger individuals. Another constant and well-marked character in *P. rectifraenum* is the presence of a very distinct

white bar on the base of the pectoral rays behind, separating the darker fin from the purplish brown pectoral base. In practically all our specimens of *P. rectifraenum* there is a small black spot on the outer base of the first pectoral ray which does not extend on to base of pectoral. On *P. gilli* there is no distinct black spot but a very dusky area extends across the outer base of the pectoral fin.

Pomacentrus arcifrons Heller & Snodgrass.

Proc. Wash. Acad. Sci., 1903, **5**, p. 202, pl. 7. Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 389.

Two specimens $2\frac{5}{16}$ to $2\frac{15}{16}$ inches long, Chatham Island, shore.

Proportional measurements of the two specimens.

Head in total length without caudal	3.33	3.42
Depth without caudal	2.30	2.28
Eye in head	3	2.80
Interorbital in head	3.60	3.50
Preorbital in head	7.71	7.00
Dorsal	XII, 16	XII, 16
Anal	II, 15	II, 14

Color in spirits, very dark brown, a little lighter on belly and lower part of head; lips pale; body posteriorly gradually becoming lighter to margin of caudal, which is quite pale; posterior margin of soft dorsal slightly paler than rest of fin; traces of small pearly spots on head; no trace of black spot or ocellus on anterior base of soft dorsal; small white spot on base of two last dorsal rays, a larger one on base of posterior anal rays; small black spot on base of first pectoral ray and a pale bar on pectoral behind axil as in *P. rectifraenum* but not so distinct. The smaller specimen is similarly colored, the pale areas being, however, more marked; an indistinct ocellus is formed on the anterior base of soft dorsal by a circle of small pale spots, the ground color of the ocellus of same intensity as surrounding area.

Thirteen specimens $\frac{5}{8}$ to $1\frac{1}{4}$ inches long, Chatham Island. M. C. Z. 29456 (2 specimens), M. C. Z. 29606 (1 specimen).

The general color of these is same as preceding, but the posterior pale area is almost yellowish white and covers posterior half of soft dorsal. The black ocellus on anterior base of soft dorsal is very distinct.

The large specimens compared in color with specimens of *P. rectifraenum* of same size, show no marked difference. Our specimens of *P. rectifraenum* do not show the paler caudal peduncle and caudal. The specimens of *P. areifrons*

are a little more slender and the suborbital a little narrower. It is possible that the strong color marking of the very young of *P. arcifrons* may serve to distinguish them from young of *P. rectifracnum*. We have no very young of the latter. In as much as the posterior paler color decreases with age, it is probable that this character would not distinguish larger individuals from *P. rectifraenum*.

Four specimens, Nos. 3217–19, No. 3219, M. C. Z. 29684 and 3271, M. C. Z. 29,642, 6 to $6\frac{3}{5}$ inches long from Wreck Bay, Chatham Island.

Pomacentrus flavilatus Gill.

Proc. Acad. Nat. Sci. Phil., 1862, p. 148.

Ten specimens $1\frac{5}{16}$ to $2\frac{13}{16}$ inches long from Acapulco. M. C. Z. 29540 (5 specimens).

One specimen, $1\frac{5}{8}$ inches long from Perico Island, Panama Bay.

Proportional Measurements of four of the largest Acapulco specimens.

Total length	56 mm.	51	49	48
Head in length without caudal	3.11	3	3.06	3.20
Depth	2.15	1.96	2.13	2.08
Eye in head	3.	2.83	2.90	2.72
Preorbital in head	7.2	8.50	9.14	7.50
Interorbital in head	3.6	3.77	4.	3.75
Dorsal counting last	XII, 15	XII, 15	XII, 15	XII, 15
Anal	II, 13	II, 13	II, 13	II, 14

In the remaining specimens the dorsal rays are constantly 15, and the anal rays 13, except in one which has 14.

The following color note was found with the specimen: — "Back brilliant blue, lower parts chrome; dorsal ocellus black."

Color in spirits, top and sides of head to near lower edge of eye and extending backward slightly below lateral line to under 6th or 7th dorsal ray abruptly purplish brown; below this, sides of head and body yellow, posteriorly brighter. The better preserved specimens have centres of scales, on sides of body on the purplish area and some on the head pale blue; posterior margin of scales dusky, forming narrow transverse lines becoming fainter posteriorly and ventrally; a jet black spot, sometimes ocellated, on upper surface of caudal pedunele; small blue spots on scales of the dusky spinous dorsal; a trace of an inframarginal pale band also present on spinous dorsal; soft dorsal dusky, with a white area, varying in size, on its posterior base, a large jet black-blue margined spot on

anterior base of fin; in some specimens there are from one to three dusky spots near the base of the rays on the white area of the soft dorsal, there is a pale blue centre in some of these spots; pectoral pale and translucent with a small black spot on base of upper ray; ventral dark gray or slate; anal usually creamy white with a broad dusky anterior and lower margin, the posterior rays with dusky tips. Some specimens have dusky punctulations and numerous dusky spots on scales of anal, some of the spots have pale blue centres. Other specimens have larger spots posteriorly, similar to those on white area of soft dorsal; in some there are similar spots, varying in number and extent, on caudal peduncle and caudal; caudal fin dusky, varying in intensity.

The head in *P. flavilatus* is closer to *P. gilli* than to *P. rectifraenum*, but it is generally longer than in *P. gilli* and in the latter it is longer than in *P. rectifraenum*. The three agree quite closely in depth, *P. flavilatus* averaging a little deeper. In the eye they overlap, but *P. rectifraenum* averages a larger eye than *P. flavilatus* and it in turn averages larger than *P. gilli*. The preorbital in *P. flavilatus* is close to *P. gilli*, but is slightly narrower; in *P. rectifraenum* it is considerably wider. The interorbital of *P. flavilatus* and *P. gilli* averages about the same; in *P. rectifraenum* it is considerably wider.

Except the great differences in coloration, there seem to be no characters by which we can distinguish *P. flavilatus* from the young of *P. gilli*. Our specimens of *P. gilli*, however, show a more vertical posterior margin to the preopercle, which in *P. flavilatus* is strongly inclined forward; *P. rectifraenum* is quite distinct.

Pomacentrus jenkinsi Jordan & Evermann.

Bull. U. S. Fish Comm., 1903, **22**, p. 189; 1905, **23**, pt. 1, p. 270, fig. 115.

Twenty-one specimens $\frac{5}{8}$ to 5 inches long from La Perouse Bay, Easter Island. M. C. Z. 29571 (9 specimens).

Three specimens, Nos. 3185–7, No. 3187, M. C. Z. 29685, $5\frac{3}{4}$ to 6 inches long from Cook Bay, Easter Island.

Thirty-six specimens $1\frac{1}{16}$ to 6 inches long, Easter Island, shore. M. C. Z. 29442 (9 specimens).

In counting the soft dorsal of the above specimens, we have counted the last ray divided to the base as two rays. It is evident that previous authors have counted as half or part of a ray what we now count as a ray. Out of thirty specimens counted from Easter Island, one had 16 dorsal rays, seventeen had 17 rays, eleven had 18 rays, and one had 19; the anal was uniformly 14; in the descriptions the dorsal has 16 and anal 13; specimens from Hawaii in

the Jordan and Evermann collection, seven specimens have dorsal 17, anal 14 as we count them.

The very young have a small white margin on spinous dorsal, becoming progressively but variously narrower in specimens up to three inches long, after which it seems to disappear entirely. This margin is not so evident in the Hawaiian specimens of similar size. This may be due to their faded condition.

Pomacentrus leucorus Gilbert.

Proc. U. S. Nat. Mus. 1892, **14**, p. 554. Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 387.

Six specimens 4 to 6 inches long, Nos. 3220–5, from Wreck Bay, Chatham Island. No. 3224, M. C. Z. 29635, No. 3225, M. C. Z. 29701.

Four specimens, M. C. Z. 29549, 1 to $1\frac{7}{8}$ inches long from Chatham Island, shore.

The following color markings were noted. A specimen 25 mm. long had side of head, body, and belly dark brown fading to pale dusky on dorsal surface anterior to soft dorsal, becoming darker again on top of snout; posterior part of caudal peduncle lighter; a line of pearly spots from tip of snout backward across upper surface of eye to nape, other small pearly spots in front of and below orbit and on opercle; base of spinous dorsal very pale, spines pale, membrane dusky, a large black ocellus on last two dorsal spines and first two rays and extending on body nearly to lateral line, rest of soft dorsal, caudal, and pectoral slightly dusky; anal and ventral color of body, traces of lighter spots on posterior base of soft dorsal and anal; outer ray of ventrals with an interrupted pearly line; trace of a light spot near tip of pectoral.

A specimen 46 mm. long similar to preceding, dorsal surface much darker with traces of grayish, tips of membranes of spinous dorsal black, ocellus confined to soft dorsal and body; pearly line from tip of snout to eye distinct, the remainder of line and other pearly spots not so marked; spot near tip of pectoral more distinct than in smaller specimens.

Abudefduf sordidus (Forskål).

Jordan & Evermann, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 274, fig. 117.
Chaetodon sordidus Forskål, Descript. Anim., 1775, p. 62 .

Two specimens $3\frac{3}{8}$ and $3\frac{9}{16}$ inches long, from Manga Reva.

In the larger specimen the black saddle on caudal peduncle is very indistinct, and the dorsal, caudal, and anal have very dusky edges, differing in this respect from the smaller one and the young.

Twenty-one specimens $\frac{3}{4}$ to $1\frac{7}{16}$ inches long from Manga Reva.

In these specimens the 2nd and 3rd body bands fuse on the spinous dorsal, in a distinct black area or blotch.

The following color note was found with these specimens: — "Broad bars, light slate gray, light silver; dorsal and peduncle spots black; spinous dorsal canary behind spot."

Six specimens $5\frac{1}{4}$ to $7\frac{3}{16}$ inches long, No. 3282–85, No. 3285, M. C. Z. 29694–95 (two damaged and not tagged), from Rikitea, Manga Reva.

Abudefduf semptemfasciatus (Cuvier & Valenciennes).

Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 285.
Glyphisodon septemfasciatus Cuv. & Val., Hist. Nat. Poiss. 1830, **5**, p. 346 (463).

Two specimens $5\frac{1}{2}$ and 7 inches long, 3286–7, M. C. Z. 29645, 29634 from Rikitea, Manga Reva.

These specimens, which we provisionally identify as above, closely resemble our specimens of *A. declivifrons*, but have a somewhat narrower preorbital, a wider interorbital, and more dorsal and anal rays. They differ also in having paler fins; in *A. declivifrons* the soft dorsal, anal, and caudal are almost black while in *A. septemfasciatus* these fins are much paler with the tips of the dorsal lobes dusky and a broad sharply defined caudal terminal margin, widest at the end of the lobes. They do not agree in form with Bleeker's figure (Atlas **9**, tab. 409, Pomac. tab. 10, fig. 5) of this species. Compared with a specimen $7\frac{3}{8}$ inches long from Samoa identified by Jordan and Seale as *A. septemfasciatus*, their specimen has a steeper profile and much darker coloration, and the ventrals, dorsal, anal, and caudal are blue-black, the caudal showing a trace of darker margin; pectoral pale; this specimen also shows purplish brown streaks along the rows of scales on the breast, not evident in our largest specimen, and but faintly indicated in the smaller; these streaks are not of specific value, because they are present in some specimens of *A. declivifrons* and absent in others.

In the 7 inch specimen the head is 3.25 in length; depth 1.63; eye 3.81 in head; preorbital 6.46; interorbital 2.47; dorsal XIII, 14 (13); anal II, 13 (12).

In the $5\frac{1}{2}$ inch specimen the head is 3.18 in length; depth 1.66; eye 3.47 in head; preorbital 6.60; interorbital 2.07; dorsal XIII, 14 (13); anal II, 14 (13).

Abudefduf saxatilis (Linné).

Jordan, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 475.
Chaetodon saxatilis Linné, Syst. Nat. ed. 10, 1758, p. 276.

Twenty-four specimens, $\frac{7}{8}$ to $4\frac{5}{16}$ inches long from Chatham Island, shore.

Nine specimens, Nos. 3226, 3262, 3263, M. C. Z. 29672, and 3272–77, 5 to 7 inches long from Wreck Bay, Chatham Island. No. 3262, M. C. Z. 29637, No. 3272, M. C. Z. 29691, No. 3274, M. C. Z. 29668, No. 3275, M. C. Z. 29682, No. 3276, M. C. Z. 29629, No. 3277, M. C. Z. 29688.

Twenty-nine specimens, $1\frac{1}{4}$ to $4\frac{3}{5}$ inches long among coral in two fathoms of water and one specimen, No. 3133, $7\frac{1}{8}$ inches long, all from Toboguilla Island, Panama Bay.

Thirty-two specimens, 1 to $4\frac{1}{4}$ inches long from Perico Island, Panama Bay, in tidal pools and among coral in two fathoms of water.

Twenty-one specimens, $2\frac{1}{8}$ to $4\frac{1}{4}$ inches long, and two specimens, Nos. 3369–70, $4\frac{3}{4}$ and 7 inches long, all from Acapulco.

Abudefduf declivifrons (Gill).

Jordan, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 476.
Euschistodus declivifrons Gill, Proc. Acad. Nat. Sci., Phil., 1862, p. 146.

Two specimens $2\frac{1}{2}$ to $3\frac{7}{8}$ inches long from Toboguilla Island, Panama Bay, among coral in two fathoms of water. M. C. Z. 29562 (1 specimen).

Seventeen specimens $\frac{3}{4}$ to $1\frac{1}{4}$ inches long, Perico Island, October 26, 1904, in pool.

Three specimens $4\frac{1}{2}$ to $6\frac{1}{4}$ inches long, Nos. 3371–3, Acapulco, February 28, 1905. No. 3373, M. C. Z. 29632 (1 specimen).

The $6\frac{1}{4}$ inch specimen had head 3.02 in length; depth 1.65; eye 3.72 in head; suborbital 5.85; interorbital 2.73; dorsal XIII, 13 (12); anal II, 11 (10). In another specimen the dorsal was XIII, 13 (12); anal II, 12 (11); another had dorsal XIII, 14 (13); anal II, 11 (10).

The young are easily distinguished from the young of *A. saxatalis* by the direction of two of the bands; in *A. saxatalis* the band from about the middle of the spinous dorsal runs downward and slightly forward to the belly, somewhat in front of anal; and the band from posterior part of spinous dorsal extends downward and forward, nearly parallel with other toward front of anal. In *A. declivifrons* the band from spinous dorsal extends downward and backward to front of anal. The band from the posterior part of spinous dorsal extends downward and backward to about the middle of anal; each band is of about uniform width; in *A. declivifrons* they are broader dorsally, becoming narrower ventrally, making them appear divergent. In *A. declivifrons* the bands above the lateral line are much darker, making the pale interspaces appear more distinct (spot-like).

Abudefduf glaucus (Cuvier & Valenciennes).

Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 286.
Glyphisodon glaucus Cuv. & Val., Hist. Nat. Poiss., 1830, **5**, p. 355 (475).

Three specimens 2 to $2\frac{3}{4}$ inches long from Manga Reva, Paumotus Islands, February 3, 1905. M. C. Z. 29416 (1 specimen).

Dascyllus aruanus (Linné).

Günther, Fische der Südsee, 1881, **7**, p. 235 taf. 124, fig. B.
Chaetodon aruanus Linné, Syst. Nat. ed. 10, 1758, p. 275.

Thirty-six specimens $2\frac{1}{4}$ to 3 inches long from Manga Reva, coral. M. C. Z. 29556 (16 specimens).

Chromis caeruleus (Cuvier & Valenciennes).

Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 290, pl. 44, fig. 1.
Heliases caeruleus Cuv. & Val., Hist. Nat. Poiss., 1830, **5**, p. 372 (497).

Thirty specimens $2\frac{1}{4}$ to 4 inches long, Manga Reva, coral. M. C. Z. 29402 (5 specimens).

The following color note was found with the specimens: — "Bright green, shading to silver on lower parts, changes to blue at once in preservatives."

One specimen $3\frac{1}{8}$ inches long from Manga Reva, February 1, 1905, coral.

Jordan and Seale included in the synonymy of this species *Chromis lepisurus* Bleeker, and *Heliastes lepidurus* Günther Fische der Südsee. In our specimens the outer rays of the caudal are more produced than shown in the figures of Bleeker and Günther.

Chromis atrilobatus Gill.

Proc. Acad. Nat. Sci. Phil., 1862, p. 149. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 139, pl. 21, fig. 43.

Twenty-two specimens $2\frac{1}{4}$ to 4 inches long, Acapulco. M. C. Z. 29570 (16 specimens).

Twenty-three specimens $2\frac{1}{4}$ to $4\frac{1}{2}$ inches long, Toboguilla Island, among coral in two fathoms of water.

Microspathodon dorsalis (Gill).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1568; 1900, pt. 4, pl. 236, fig. 594.
Hypsypops dorsalis Gill, Proc. Acad. Nat. Sci., Phil., 1802, p. 149.

Four specimens, Nos. 3324–3327, $7\frac{3}{4}$ to $10\frac{5}{8}$ inches long, and five specimens $4\frac{3}{4}$ to 6 inches long, all from Acapulco. No. 3324, M. C. Z. 29660, No. 3325, M. C. Z. 29680.

LABRIDAE.

Bodianus diplotaenius (Gill).

Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 391.
Harpe diplotaenia Gill, Proc. Acad. Nat. Sci. Phil., 1862, p. 140.

A female $9\frac{1}{2}$ inches long from Toboguilla Island, Panama Bay.

Bodianus eclancheri (Valenciennes).

Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 392.
Cossyphus eclancheri Val., Voy. Venus, 1846, pl. 8, fig. 2, 1855, **5**, p. 340.

No. 3248, a specimen 13 inches long from Wreck Bay, Chatham Island.

The dark markings on the two sides are different and not at all like Valenciennes's description. A great color variation is described by Snodgrass and Heller (*loc. cit.*).

Pseudolabrus inscriptus (Richardson).

Labrichthys inscripta Günther, Cat., 1862, **4**, p. 115.
Labrus inscripta vel *Tautoga inscripta* Richardson, Ichthy. Erebus & Terror, 1844, p. 134, pl. 56, fig. 1–2.

Plate 5, fig. 2, Plate 6, fig. 1.

Four specimens 2 to 5.25 inches long from shore at Easter Island. M. C. Z. 29438 (2 specimens).

Proportional measurements of the two largest specimens.

Total length in inches	5.25	3.94
Length (standard) mm.	115	83
Head in length	3.10	3.19
Depth	3.10	3.19
Eye in head	5.28	4.33
Snout in head	3.08	2.88
Dorsal	IX, $11\frac{1}{2}$	IX, $11\frac{1}{2}$
Anal	III, $10\frac{1}{2}$	III, $10\frac{1}{2}$
Scales	4–26–8	4–26–8
Canines	2 (4)–4	2 (4)–4

Richardson in his description gives dorsal IX, 14, in figure IX, 11.

Color in spirits: — of the two larger specimens the smaller is very much lighter in color, but of similar pattern and possessing small black spots between lateral line and dorsal, these arranged in groups of 1–3, the arrangement unlike on the two sides, but for the most part in pairs; a group of four indistinct spots on top of caudal pedunele; white spots and lines on sides of head and throat are more distinct in the larger specimen. In the two smaller specimens the colors are more faded but similar to the smaller specimen just described.

Halichoeres sellifer GILBERT.

Proc. U. S. Nat. Mus., 1890, **13**, p. 67.

One specimen, No. 3387, $6\frac{1}{4}$ inches long from Acapulco.

This specimen agrees structurally very well with the description of the Type, except that the caudal is subtruncate or gently rounded; when spread the outer rays are regularly shorter than the middle rays. Gilbert and Starks (Mem. Cal. Acad. Sci., 1904, **4**, p. 144) mention specimens from Panama Bay with such caudal.

This specimen had been so long in alcohol that the colors can not be determined definitely.

There is a trace of a black half-bar on the side of the back from between the 5th and 7th dorsal spines, and indications of other dark markings along back extending downward from dorsal, the first from region of 9th spine and 1st ray; 2nd from 3rd and 5th ray; 3rd from 6th and 7th; 4th from 9th and 10th; 5th a sort of saddle on caudal peduncle, the intensity of these is greatest on the lateral line, below the lateral line is a faded area, and below this an irregular dusky shade most intense in line with the bars; traces of three of four narrow, wavy dusky cross-bars on the dark yellow caudal; other fins all plain yellowish with very slight traces of dusky lines. Head 3.28 in length; depth 3.28; eye 6 in head; snout 3.32; dorsal IX, 11; anal III (?), 12; scales $3\frac{1}{2}$–28–$8\frac{1}{2}$.

Halichoeres dispilus (GÜNTHER).

JORDAN, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 481.
Platyglossus dispilus GÜNTHER, Proc. Zool. Soc. London, 1864, p. 25.

Two specimens $3\frac{3}{4}$ and $3\frac{15}{16}$ inches long from Acapulco. M. C. Z. 29538 (1 specimen).

The $3\frac{15}{16}$ inch specimen has head 3.22 in length; depth 4.14; eye 4.50 in head; snout 3.37; scales 4–27–$8\frac{1}{2}$; dorsal IX, 11; anal III, 12; a well-developed canine on each side of upper jaw.

Color note: — an irregular pale margined ocellus occupying part of five scales lies below space between 4th and 5th dorsal spine, the two central scales being in lateral line; middle rays of caudal covered by a large dusky blotch, within this are three small pale spots.

The other specimen can not be distinguished structurally except in the absence of canine teeth in the sides of upper jaw, and slight variation in color. The dark ocellus lies below 4th dorsal spine, and occupies one entire scale and part of two others, one of these lying in lateral line, the others below. No dusky blotch on caudal.

Pseudojulis notospilus Günther.

Proc. Zool. Soc. London, 1864, p. 26. Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 396.

Plate 6, fig. 2.

Two specimens 5.37 and 5.62 inches long from Acapulco.

Larger specimen deformed, giving it a much steeper profile. The color differs somewhat from current descriptions. The following color note was with the specimen: — "Ground color, olive-green with darker bars; edge of dorsal, anal, and ventral sky-blue, dots on anal and dorsal of the same color, middle dorsal spot black, submarginal stripe brown, lighter bar sometimes bluish."

One specimen M. C. Z., 29558, 5.5 inches long from Acapulco February 28, 1905.

The following color note was with the specimen: — "Dorsal spot yellow on either side of black middle spot; purple bar at base of pectoral; sky-blue spots forming bars on dorsal, caudal and anal; scales with blue marginal bar; general color olive-green."

Five specimens $\frac{5}{8}$ to $1\frac{3}{4}$ inches long from Perico Island, in tide pool.

We give the following notes on a specimen 3.06 inches long from Acapulco.

No canine teeth in posterior part of jaws, anterior canines $\frac{2}{4}$ (or possibly $\frac{4}{4}$); head scaleless; about six scales (possibly seven) in front of dorsal, not meeting over dorsal ridge; lateral line complete and continuous; scales in lateral line 18+3+6 or 7, in transverse series four including lateral line and counted from front of dorsal downward and backward, $8\frac{1}{2}$ downward and backward from lateral line to origin of anal. Head 3.5 in length; depth 3.63; eye 4.75 in head; snout 3.33; interorbital 5; dorsal IX, 11; anal III, 12.

Cheilio inermis (Forskål).

Jordan & Evermann, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 314, pl. 33.
Labrus inermis Forskål, Descript. Anim., 1775, p. 34.

Three specimens, Nos. 3166, M. C. Z. 29651, 3167, and 3168, $14\frac{1}{2}$, $15\frac{1}{8}$ and $16\frac{3}{16}$ inches long from Cook Bay, Easter Island.

These specimens vary greatly in color, but little in structure. No. 3168 is a little more slender, has a smaller eye, a slightly larger and slightly longer mouth. No. 3166 has head 3 in length; depth 5.83; orbit 6.41 in head; distance from tip of snout to corner of mouth 2.85 in head; tip of upper lip to orbit 2.22; interorbital 10.3; pectoral 2.61; dorsal rays 22; anal I, 14; scales

6–46–11; No. 3167 has head 3 in length; depth 5.84; orbit 6.38 in head; distance from tip of snout to corner of mouth 2.8; tip of upper lip to orbit 2.25; interorbital 10.4; pectoral 2.8; dorsal rays 22; anal I, 14; scales 6–46–11. No. 3168 has head 3 in length; depth 6.42; orbit 7.17 in head; distance from tip of snout to corner of mouth 2.48; tip of upper lip to orbit 2.17; interorbital 10.1; pectoral 2.71; dorsal rays 22; anal I, 14; scales 6–46–11.

Nos. 3166 and 3167 are essentially alike in color, each having a large irregular black blotch on the side immediately back of tip of pectoral, beginning on a level with opercular angle and extending in No. 3166 to the belly and not quite to it in No. 3167, the spot being fainter below; general color of body and upper part of head, dark purplish brown, each scale margined with yellowish, giving the specimen a cross-hatched appearance; dorsal and anal membranes mottled with white; caudal in No. 3166 brownish olive, in No. 3167 it is mottled like dorsal and anal; No. 3168 is markedly different in color, almost uniformly dull yellowish tending to brownish on back; a longitudinal dark stripe on axis from just below angle of opercle to caudal, the stripe is composed of spots, each occupying most of a scale, anteriorly the spots are in pairs, posteriorly they are single and on the lateral line; all the fins are plain yellowish, no mottling.

Thalassoma duperrey (Quoy & Gaimard).

Jordan & Evermann, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 302, fig. 130, pl. 35.
Julis duperrey Quoy & Gaimard, Voy. Uranie. Zool., 1824, p. 268, pl. 56, fig. 2.

One specimen 6 inches long from Toboguilla Island.

One specimen, M. C. Z. 29404, $4\frac{1}{4}$ inches long from Acapulco.

The following color note was with the last specimen, M. C. Z. No. 29404: — "Shoulder and front of pectoral canary-yellow; belly and rest of body wine-red; looks blue in water on top; head pinkish black; chin blue; pectoral spot blue-black; darker sublateral band; caudal black; dorsal and anal body color with a light margin."

Thalassoma purpureum (Forskål).

Jordan & Evermann, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 295.
Scarus purpureum Forskål, Descript. Anim., 1775, p. 27.

One specimen, No. 3169, 16 inches long, probably from Cook Bay, Easter Island.

This specimen is a faded counterpart of *Scarus georgii* (Bennett, Fish. Ceylon, 1834, pl. 24) and resembles very closely Ruppell's figure of *Julis semicoeruleus* (Neue Wirb. Fische, Atlas, 1828, taf. 3, fig. 1).

Thalassoma umbrostigma (Rüppell).

Jordan & Evermann, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 300, fig. 129.
Julis umbrostigma Rüppell, Neue Wirb. Fische. Atlas, 1828, taf. 3, fig. 2.

Nineteen specimens, M. C. Z. 29407, $\frac{13}{16}$ to $2\frac{3}{8}$ inches long from La Perouse Bay, Easter Island.

Thirty-eight specimens $1\frac{1}{16}$ to $2\frac{1}{2}$ inches long, Easter Island.

Thalassoma lucasanum (Gill).

Jordan, Proc. Cal. Acad., 1895, ser. 2, **5**, p. 482.
Julis lucasanum Gill, Proc. Acad. Nat. Sci. Phil., 1862, p. 142.

Four specimens, M. C. Z. 29413, $1\frac{9}{16}$ to $2\frac{3}{8}$ inches long from Acapulco.

Nine specimens $2\frac{7}{8}$ to $4\frac{3}{4}$ inches long from Toboguilla Island, Panama Bay, coral.

The Acapulco specimens have the following color note with them: — "Body silvery; breast and lower head yellow, continued as a sublateral band to caudal fin; below this red; caudal also red, except black and white marginal stripes; ventrals, edge of dorsal, anal, and caudal white; no spot in front of caudal; median stripe black-brown, above yellowish green, showing yellow in water; red specks on this band on caudal half; top of head and dorsal fin black."

Cheilinus undulatus Ruppell.

Neue Wirb. Fische, Atlas, 1828, taf. 6, fig. 2; 1835, p. 20.

One specimen $4\frac{1}{8}$ inches long from Manga Riva (coral) February 4, 1905.

The following color note was found with the specimen: — "General color light brown shading to olive-green on head; spots blackish brown; no brown on cheeks and chin; white on fins except pectoral; tip of dorsal membrane red with white at points; caudal and anal less distinctly so."

SCARIDAE.

Callyodon perrico (Jordan & Gilbert).

Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 317.
Scarus perrico Jordan & Gilbert, Proc. U. S. Nat. Mus., 1882, **4**, p. 357.

Two specimens, Nos. 3122, M. C. Z. 29673, and 3123, $14\frac{1}{2}$ and $17\frac{1}{2}$ inches long respectively, probably from Perico Island, Panama Bay.

Callyodon noyesi (Heller & Snodgrass).

Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 397.
Scarus noyesi Heller & Snodgrass, Proc. Wash. Acad. Sci., 1903, **5**, p. 206, pl. 9.

One specimen, No. 3124, 21 inches long, probably from Perico Island or Panama.

Previously known only from Galapagos Islands.

CHAETODONTIDAE.

Chaetodon nigrirostris (Gill).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1673.
Sarothrodus nigrirostris Gill, Proc. Acad. Nat. Sci. Phil., 1862, p. 243.

Two specimens, each $2\frac{5}{8}$ inches long and two specimens, No. 3343, M. C. Z. 29655, and No. 3354, 5 and $5\frac{1}{2}$ inches long from Acapulco and 1 specimen 6 inches long from Perico Island, Panama Bay.

The black between the eyes does not extend entirely across the interorbital space, it being simply two black blotches above the eye. The black of the opercular margin is continued across or nearly across the base of pectoral fin.

Chaetodon humeralis Günther.

Cat., 1860, **2**, p. 19. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 149.

Two specimens, Nos. 3113 and 3121, M. C. Z. 29690, respectively 5 and $4\frac{5}{8}$ inches long and two specimens, M. C. Z. 29559 each $4\frac{1}{2}$ inches long from Perico Island, Panama Bay.

Thirteen specimens, $4\frac{1}{4}$ to 5 inches long from Toboguilla Island, Panama Bay, in two fathoms.

Five specimens, Nos. 3316–18 and No. 3355, M. C. Z. 29687, No. 3356, M. C. Z. 29676, $4\frac{1}{2}$ to $4\frac{5}{8}$ inches long from Acapulco.

Color: — a dark band narrower than eye, runs from nape curving downward and forward through the eye across cheek and then curving backward to throat; another broader band from front of dorsal through the base of pectoral, then faintly to ventrals; then a broader band along base of soft dorsal and anal across caudal peduncle; a dark inframarginal band to soft dorsal and anal, rays bordered with light yellow, anal border broader than dorsal; narrow dark band across caudal peduncle at base of caudal; a broader band across base of caudal fin; another intramarginal band near tip of caudal.

Chaetodon lineolatus Quoy & Gaimard.

Cuvier & Valenciennes, Hist. Nat. Poiss., 1831, **7**, p. 31 (40).

A specimen, No. 3281, $8\frac{7}{8}$ inches long from Rikitea, Manga Reva.

In the figure given by Günther (Fische der Südsee 1874, **2**, taf. 34, fig. A.) and copied by Jordan and Evermann (Bull. U. S. Fish Comm., 1905, **23**, pt. 1, p. 365, fig. 159), the black lines are wrongly drawn obliquely, instead of vertically and following the series of scales as they are in the specimen and as Günther and Jordan and Evermann correctly describe them.

Chaetodon trifasciatus Mungo Park.

Trans. Linn. Soc. London, 1797, **3**, p. 34. Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 344.

One specimen $2\frac{3}{8}$ inches long from Manga Reva, coral.

The following color note was found with the specimen: — "Bright yellow, brighter on breast and head; bars brown, nearly black; peduncle spot black; stripes gray."

This specimen has a distinct black spot in the angle between the soft dorsal and caudal peduncle, much darker than the dusky band along base of the soft dorsal in which it lies.

Heniochus monoceros Cuvier & Valenciennes.

Hist. Nat. Poiss., 1831, **7**, p. 76 (100), pl. 176. Günther, Cat., 1860, **2**, p. 41.

One specimen, No. 3280, 6 inches long from Rikitea, Manga Reva.

Pomacanthus zonipectus (Gill).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1682.
Pomacanthodes zonipectus Gill, Proc. Acad. Nat. Sci. Phil., 1862, p. 244.

One specimen $\frac{7}{8}$ inch long from Perico Island, 10–25–'04.

Holacanthus passer Valenciennes.

Voy. Venus, 1855, **5**, p. 327, pl. 6. Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 150.

Two specimens, Nos. 3132 and 3151, M. C. Z. 29616, 6 and $7\frac{3}{4}$ inches long, and seven specimens, $2\frac{3}{4}$ to $4\frac{3}{4}$ inches long among coral in two fathoms of water, all from Toboguilla Island, Panama Bay.

Three specimens, Nos. 3241–43, 5 to $8\frac{1}{4}$ inches long from Wreck Bay, Chatham Island.

Four specimens, Nos. 3328–31, No. 3330, M. C. Z. 29679, No. 3331, M. C. Z. 29686, 5 to $6\frac{1}{2}$ inches long from Acapulco.

One specimen, $5\frac{1}{2}$ inches long without tag or locality.

In these specimens, there are numerous small round, grayish spots on the nape in front of dorsal; in other respects they agree with current descriptions. In some of our young examples there are coarse reticulations of blue lines on the cheek between the lines running downward from in front and from behind the eye. The color of the young is well described by Snodgrass and Heller.

TEUTHIDIDAE.

Teuthis triostegus (Linné).

Chaetodon triostegus Linné, Syst. Nat. ed. 10, 1758, p. 274.

Eight specimens each about $1\frac{1}{4}$ inches long from Manga Reva, February 3, '05. M. C. Z. 29414 (3 specimens).

Our specimens agree with Street's account (Bull. 7, U. S. Nat. Mus., p. 67) of *Acanthurus triostegus* in the color markings with the exception of those on the tail. They also agree with specimens from Samoa in Jordan and Seale's collection labeled *T. triostegus*. All of our specimens have at least traces of a bar across caudal peduncle and one across base of caudal fin. In most of them the former bar is more distinct; in one instance the bar across base of caudal is more distinct; in one instance the bar extends across caudal peduncle on one side of the specimen and on the other side only partly so.

Teuthis umbra Jenkins.

Bull. U. S. Fish. Comm., 1903, **22**, p. 477.

Two examples, Nos. 3181 and 3164, M. C. Z. 29677, $8\frac{1}{4}$ and $6\frac{1}{4}$ inches long, from Cook Bay, Easter Island.

Comparing these specimens with a specimen from Hawaii, we find them identical in color, except that the white on the base of the caudal is not so evident, but it is very faint in the Hawaiian specimen. The profile between the snout and front of eyes is a little more concave in our specimen; the caudal fins are similar in emargination.

For purposes of comparison we give the following measurements of our specimens and of the Hawaiian specimen.

No. 3181 has, head 3.77 in length without caudal; depth 1.70; eye 4.09 in head; snout 1.19; interorbital 2.81; dorsal IX, 25; anal III, 22.

No. 3164 has, head 3.68 in length; depth 1.66; eye 3.77 in head; snout 1.30; interorbital 2.83; dorsal IX, 25; anal III, 23.

The Hawaiian specimen, $7\frac{3}{4}$ inches long, has head 3.66 in length; depth 1.70; eye 4.10 in head; snout 1.32; interorbital 2.82; pectoral 3.33; dorsal IX, 27; anal III, 23.

Ctenochaetus striatus (Quoy & Gaimard).

Jordan & Evermann, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 399, fig. 174.
Acanthurus striatus Quoy & Gaimard, Voy. Uranie. Zool., 1825, p. 373, pl. 63, fig. 3.

Thirteen specimens 3 to 4 inches long from Manga Reva, February 4, 1905. M. C. Z. 29405 (3 specimens).

The dorsal varies from $29\frac{1}{2}$ to $31\frac{1}{2}$, and the anal from $27\frac{1}{2}$ to $29\frac{1}{2}$. These were taken among the coral reefs. The following color note made by Mr. Chamberlain was in the bottle with the specimens: — "They are quite dark in color, showing indistinct darker stripes, which are plainest on caudal region and back; faint pale stripes show on dorsal and anal."

The bodies of the specimens show no stripes, but they are evident on the fins; pectoral pale yellowish; the upper ray being margined with black; dorsal and anal each have a narrow black margin. These fins are usually much darker than body color, but in a few specimens they are about the same color; caudal deeply lunate when spread, and appears forked when not spread, the upper and lower rays being greatly produced, this fin is usually darker in color than the body, the rays being darker than the membranes and in some instances the outer rays are each margined with white, the lunate border shows in all the specimens with a narrow margin of white.

Zebrasoma veliferum (Bloch).

Jordan & Evermann, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 396, fig. 173.
Acanthurus velifer Bloch, Ausl. Fische, 1795, **9**, p. 106, taf. 427, fig. 1.

One specimen $5\frac{1}{2}$ inches long, No. 3293, from Rikitea, Manga Reva.

Xesurus punctatus (Gill).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1695.
Prionurus punctatus Gill, Proc. Acad. Nat. Sci. Phil., 1862, p. 242.

Three specimens, Nos. 3313, M. C. Z. 29630 and 3336–7, respectively $9\frac{3}{4}$, 15 and 10 inches long from Acapulco.

Xesurus clarionis Gilbert & Starks.

Proc. U. S. Nat. Mus., 1897, **19**, p. 445, pl. 51. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1695.

Two specimens, Nos. 3211, 3212, M. C. Z. 29678, 13 and $7\frac{1}{4}$ inches long from Wreck Bay, Chatham Island.

SIGANIDAE.

Siganus rostratus (Cuvier & Valenciennes).

Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 360.
Amphicanthus rostratus Cuv. & Val., Hist. Nat. Poiss., 1835, **10**, p. 116 (158).

Two specimens 5 and $6\frac{1}{4}$ inches long from Manga Reva, coral. M. C. Z. 29431 (1 specimen).

SCORPAENIDAE.

Sebastopsis xyris Jordan & Gilbert.

Proc. U. S. Nat Mus., 1882, **5**, p. 369. Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 414.

Fifteen specimens $2\frac{1}{2}$ to $4\frac{1}{4}$ inches long from Chatham Island, Galapagos near shore. M. C. Z. 29412 (5 specimens).

Scorpaena mystes Jordan & Starks.

Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 491. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 161.

One specimen, No. 3213, M. C. Z. 29718, 12 inches long from Wreck Bay, Chatham Island.

One specimen, No. 3375, $14\frac{3}{4}$ inches long from Acapulco.

? Scorpaena histrio Jenyns.

Zool. Voy. Beagle, Fish., 1842, pt. 4, p. 35, pl. 8. Snodgrass & Heller, Proc. Wash. Acad. Sci. 1905, **6**, p. 415.

One specimen $\frac{7}{8}$ inches long from shore at Chatham Island.

GOBIIDAE.

Dormitator maculatus (Bloch).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2196
Sciaena maculata Bloch, Ausl. Fische, 1792, **6**, p. 44, pl. 299, fig. 2.

Seven specimens $\frac{15}{16}$ to $4\frac{9}{16}$ inches long from one mile south of Panama City. M. C. Z. 29426 (3 specimens).

Gymneleotris seminudus (Günther).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2204.
Eleotris seminudus Günther, Proc. Zool. Soc. London, 1864, p. 24, pl. 4. figs. 2, 2a.

One specimen $1\frac{5}{16}$ inches long from Acapulco.

This is the second specimen of this species known. The Type is in the British Museum.

In our specimen the well-defined cross-stripes are a little more regular than shown in Günther's figure.

Gobius rhizophora Heller & Snodgrass.

Proc. Wash. Acad. Sci., 1903. **5**, p. 212, pl. 12.

Two specimens $1\frac{3}{16}$ and $1\frac{1}{4}$ inches long from Chatham Island. M. C. Z. 29597.

These specimens have been compared with the Types of *Gobius zebra*, which are very small individuals differing in coloration, having the dark cross-bars narrow; the light interspaces, traversed mesially by a dark line, are broad; in *G. rhizophora* the dark cross-bars are wide, the light interspaces narrow.

Gobius gilberti Heller & Snodgrass.

Proc. Wash., Acad. Sci., 1903, **5**, p. 214, pl. 13.

Two specimens, $\frac{3}{4}$ and $\frac{13}{16}$ inches long from Chatham Island. M. C. Z. 2959 (1 specimen).

Mapo soporator (Cuvier & Valenciennes).

Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 416.
Gobius soporator Cuv. & Val., Hist. Nat. Poiss., 1837, **12**, p. 42 (56).

Nineteen specimens, $\frac{5}{8}$ to $3\frac{5}{8}$ inches long from Chatham Island.

Forty-five specimens, $\frac{9}{16}$ to $3\frac{1}{16}$ inches long from Perico Island, Panama Bay. M. C. Z. 29391 (22 specimens).

Thirty-three specimens, $\frac{11}{16}$ to $3\frac{3}{4}$ inches long from Manga Reva. Two of these have seven dorsal spines, the others have six. The following color note was with part of the specimens from Manga Reva: — "Light brown shades; spots pearly; brownish on dorsal and caudal; general shade very dependent on character of bottom."

Kelloggella oligolepis (Jenkins).

Jordan & Evermann, Bull. U. S. Fish. Comm., 1905, **23**, pt. 1, p. 488, fig. 215.
Enypnias oligolepis Jenkins, Bull. U. S. Fish. Comm., 1904, **22**, p. 504, fig. 45.

Ten specimens $\frac{3}{4}$ to $1\frac{1}{4}$ inches long from La Perouse Bay, Easter Island, shore. M. C. Z. 29400 (1 specimen), M. C. Z. 29614 (4 specimens).

These specimens show some variation in the number and width of the cross-bars. They have been compared with the Type from Honolulu and differ from it in having pale vertical fins. The Type has blackish dorsal and dusky caudal. One of the specimens recorded by Jordan and Evermann from Waianae, Hawaii, has caudal faintly barred. We can not detect, on the Type, the few small scales said to be on the posterior part of the body.

Gobiosoma crescentale GILBERT.

Proc. U. S. Nat. Mus., 1892, **14**, p. 557. JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2259.

Two specimens 2 and $2\frac{3}{4}$ inches long from Chatham Island, shore. M. C. Z. 29603 (1 specimen).

Proportional measurements of the two specimens.

Length to base of caudal	56 mm.	42 mm.
Head in length	3.73	3.50
Depth in length	6.22	6.
Eye in head	5.	5.33
Snout in head	5.	5.33
Pectoral in length	1.07	1.33
Ventral in length	1.36	1.33
Dorsal	VII–12	VII–12
Anal.	11.	11.

Color, gray, mottled with brown; sides of head with alternate brown and pale bars; opercle pale with faint dark spots; pectoral light gray with a faint crescent-shaped dark bar at base, preceded by a brighter area; dorsal and anal gray, with a blackish edge to anal membrane anteriorly; caudal dusky with a faint indication of crescent at base; ventral pale. The smaller specimen is similarly colored with the markings more distinct. Some of the brown markings on the body, especially anteriorly, tend to form irregular pairs of cross-bars.

DACTYLOSCOPIDAE.

Gillelus rubellulus, sp. nov.

Plate 6, fig. 3.

Type No. 65510, U. S. N. M., $2\frac{5}{16}$ inches long, from Chatham Island.

Lower jaw somewhat projecting; maxillary reaching to a line from posterior margin of orbit; both lips with a small fringe; anterior nostril small, tubular; opercular fringes well developed, nine in number; teeth in each jaw in a band in front, narrowing posteriorly; anterior portion of lateral line running along base of dorsal (one row of scales between it and base of fin) and descending downward to middle of side opposite last unjointed ray.

The rays of the ventral fin are connected by a thin transparent membrane.

Color in alcohol: — ground color pale straw tinged above with pinkish; head, back, and sides thickly spotted and blotched with pearly white; lips

white with four narrow cross-bands; a narrow longitudinal black bar across eye through pupil, extending on to preorbital; scattered black dots on head; four small black dots in a row across nape at the junction of the occiput; back with five broad cross-bars of pink, thickly punctulated with brown, narrowly margined in front and back with dark brown, ending about middle of sides in large specimens, in smaller extending nearer ventral surface; the first extending from posterior part of first dorsal to the pectoral; the second beginning about middle of second dorsal and extending but slightly below lateral line; third beginning opposite posterior part of second dorsal and ending about middle of side; fourth beginning about middle of third dorsal and extending to lateral line; fifth extending across base of caudal; first dorsal pink; second and third translucent with black dots on each ray; anal pale translucent; pectoral has a row of black spots extending about half across fin and situated about $\frac{1}{3}$ of the distance from base to tip of fin; caudal with about four faint cross-bars. Second specimen similarly colored; interspaces between bands with scattered brown dots; rays of outer half of pectoral with a few black spots; the second cross-bar extending to about middle of body; the third nearly to anal, the fourth almost touching anal. The third specimen has no brown spots on body; the cross-bars extend to the middle line of body. The smallest specimen is colored like the third except that the fourth cross-bar extends nearly to the anal.

Proportional measurements.

	Type	Cotype	Cotype	Cotype
Total length in inches	2.31	1.9+	1.69	1.5
Length of base of caudal in mm.	50	42	38	35
Head	4.16	3.81	3.80	4.37
Depth	5.55	5.25	5.42	5.38
Eye	6.	5.50	5.00	4.00
Snout	6.	5.50	5.00	4.00
Interorbital	8.57	11.	6.66	8.00
Maxillary	2.4	2.44	2.50	2.18
Dorsal	III–XV, 15	III–XV, 17	III–XV, 16	III–XV, 17
Anal	II, 28	II, 27	II, 27	II, 27
Scales	23+3+16	22+3+16	21+3+16	23+3+16

Dactyloscopus pectoralis GILL.

Proc. Acad. Nat. Sci. Phil., 1861, p. 267. JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2301.

Three specimens $1\frac{1}{8}$ to $1\frac{3}{4}$ inches long from Chatham Island, shore. M. C. Z. 29615 (1 specimen).

Measurements of largest specimen were as follows: — Head 3.8 in body without caudal, 4.19 in total length; depth 6.15 in body without caudal, 6.76 in total length; eye equal to interorbital, 10.5 in head; breadth of head at its junction with nape 1.9 in length of head; maxillary 3.00 in head; dorsal XII, 25, the first three dorsal rays free, without membrane, the 4th provided with a membrane joining it to base of 5th; A. II, 28; scales in lateral line 12 + 4 + 26 = 42.

Both lips are strongly fringed, anterior nostrils are placed on edge of preorbital, with long tubes, which, when depressed, reach nearly to orbit; opercle with about ten rays or cilia.

Color in alcohol: — (specimen was somewhat dried). Head above white, a narrow, wavy dark line extending from back of eye downward and backward to edge of preopercle; another fainter line from lower front of eye, downward and backward to behind corner of mouth; body straw colored; a large quadrate brown spot on nape, from this a series of brown spots extend downward across interopercle; back, along base of dorsal, white; a small brown spot on each side of nape; six small quadrate brown spots at the base of the dorsal, the last one being above the 18th scale of the straight portion of the lateral line; pectoral with two faint dusky cross-bars, one near base, other near middle of fin, rest of fin whitish; other fins yellowish translucent.

The second specimen has, D. XII, 24; A. II, 26; scales 12 + 4 + 26; it has general straw color of preceding, markings similar; seven quadrate spots along base of dorsal; a faint spot at base of caudal; some of the scales on intermediate spaces margined with brown; some of the scales along the lateral line, anteriorly, punctulate with brown; pectoral without cross-bars.

The smallest specimen has, D. XII, 24; A. II, 27; scales 12 + 4 + 26; coloration similar to preceding; seven quadrate spots; no dusky spots on interspaces between quadrate spots; no punctulations along scales of lateral line; pectoral plain.

These specimens have a longer head and more dorsal rays than given in description of *D. pectoralis*, but seem to agree with the latter in other respects.

BLENNIIDAE.

Enneanectes carminalis (Jordan & Gilbert).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2350.
Tripterygium carminale Jordan & Gilbert, Proc. U. S. Nat. Mus., 1882, **4**, p. 362.

One specimen $1\frac{3}{4}$ inches long from Acapulco.

Dorsal III–XII–9; anal II, 16; scales 33.

General color in alcohol, dull reddish brown; muzzle, gular region and gill-membranes pale; a short dusky bar from eye downward and backward to tip of maxillary; diffuse dusky blotch on opercle; scales with dusky margin; five broad dark brown cross-bars on body, the first extending from front of second dorsal, third from front of soft dorsal, fourth from just anterior to posterior end of soft dorsal; fifth across caudal peduncle; on the interspaces between second and third and third and fourth cross-bars a narrow dusky line extending downward from lateral line, and between fourth and fifth a narrow dusky cross-bar; membrane of first dorsal and anterior part of second dorsal black, rest of dorsal fins pale; ventrals pale; pectorals pale with about five broad faint dusky wavy cross-bars; anal pale, membrane broken and gone; caudal pale with a narrow dusky bar across base, followed by a diffuse dusky blotch, and a broad jet black terminal margin.

We also have seven other small specimens $\frac{15}{32}$ to $\frac{25}{32}$ inch long from Acapulco, anal rays 16 and 17. M. C. Z. 29587 (4 specimens).

The general color is pale straw. Five of these have three black spots with white centres on the top of head, one of the spots is behind each eye and one of occiput just before first dorsal; another (the smallest) has the three black dots similarly situated but without the white centre; another (the largest) has but one black spot, it is on the occiput and lacks the white centre; a short black cross-bar at posterior base of isthmus in front of ventral, another on belly just back of base of ventral; a black dot at base of each soft dorsal ray and two on top of caudal peduncle and two on its lower edge; base of each anal ray black, this color joined to the ray behind it by a black line; a black line across base of caudal.

The largest of these seven specimens shows traces of dusky bars on caudal fin.

Jordan and Evermann (*loc. cit.*) state that the anal is II, 11 (misprinted II, 17) in the original description. This could not be verified from the fact that the Type can not be found. The present specimens, if correctly identified, show that the original count was probably correct.

Malacoctenus delalandii (Cuvier & Valenciennes).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2358.
Clinus delalandii Cuv. & Val., Hist. Nat. Poiss., 1836, **11**, p. 279 (378).

One specimen $2\frac{1}{8}$ inches long from Perico Island, pool.

One specimen, M. C. Z. 29607, $1\frac{9}{16}$ inches long from Acapulco.

Malacoctenus zonogaster Heller & Snodgrass.

Proc. Wash. Acad. Sci., 1903, **5**, p. 217, pl. 6.

Thirty-two specimens $\frac{15}{16}$ to $3\frac{5}{16}$ inches long from Chatham Island, shore. M. C. Z. 29410 (12 specimens).

Labrisomus jenkinsi Heller & Snodgrass.

Proc. Wash. Acad. Sci., 1905, **5**, p. 219, pl. 16.

One specimen, 4 inches long from Chatham Island, shore.

The dorsal XIX, 11; vomerine series of teeth extend back for a short distance on to the palatines. Numerous small brown spots on under side of head and throat. This specimen was found with *Alticus atlanticus*.

Mnierpes macrocephalus (Günther).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2364.
Clinus macrocephalus Günther, Cat., 1861, **3**, p. 267.

Nine specimens 2 to $4\frac{1}{2}$ inches long from Perico Island, Panama Bay, in one fathom. M. C. Z. 29424 (3 specimens).

Two specimens $3\frac{1}{8}$ to $3\frac{1}{2}$ inches long from Toboguilla Island, under a stone, eighteen feet from waters at low tide.

Auchenopterus monopthalmus Günther.

Cat., 1861, **3**, p. 275. Gilbert & Starks, Mem. Cal. Acad Sci., 1904, **4**, p. 189.

Three specimens $\frac{13}{16}$ to $1\frac{7}{8}$ inches long from Perico Island, October 25, 1904. M. C. Z. 29598 (1 specimen).

? Emmnion bristolae Jordan.

Proc. U. S. Nat. Mus., 1897, **19**, p. 454, pl. 55, fig. 1.

Many young specimens $\frac{5}{8}$ to $\frac{3}{4}$ inch long from Acapulco, attracted by using electric light. M. C. Z. 29604.

These specimens cannot be positively identified but they have the appearance and fin-ray counts described by Jordan and the lateral line is straight and runs near the back. The species has not been reported since the original record. It is possible that they are the young of some other blenny.

Runula azalea Jordan & Bollman.

Proc. U. S. Nat. Mus., 1890, **12**, p. 171. Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 419.

Nine specimens $1\frac{3}{8}$ to $2\frac{1}{8}$ inches long from Acapulco, shore. M. C. Z. 29609 (2 specimens).

The following note was with these specimens: — "Stripe on back bright yellow; first dorsal red; belly pinkish. In large schools, abundant about rocks."

In these specimens the anal has uniformly 29 rays.

Two specimens $1\frac{3}{4}$ and $1\frac{7}{8}$ inches long from Acapulco.

Three specimens $1\frac{5}{8}$ and $2\frac{3}{4}$ inches long from Chatham Islands, shore. M. C. Z. 29599 (1 specimen).

Dialommus fuscus Gilbert.

Proc. U. S. Nat. Mus., 1891, **13**, p. 452. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2868.

Two specimens, $2\frac{5}{16}$ and $2\frac{7}{8}$ inches long from Chatham Island, shore.

The "oblique pigmented band" of the eye is more nearly vertical than in Anableps. One specimen, M. C. Z. 29611, $1\frac{13}{16}$ inches long from Perico Island, tide pool.

Enneapterygius corallicola, sp. nov.

Plate 7, fig. 1.

Two specimens $1\frac{5}{16}$ and $1\frac{7}{16}$ inches long from Chatham Island, shore.

Type, No. 65484, U. S. Nat. Mus., $1\frac{7}{16}$ inches long, from Chatham Island.

Head 3.44 in length; depth 4.76; eye 3; snout 3.50; maxillary 2.25; dorsal III–XV, 13; anal 23; scales 29+10.

In the $1\frac{5}{16}$ inch specimen, M. C. Z. 29492, the dorsal is III–XV–14; anal 23, scales 27+12.

Each specimen has a small simple nasal cirrus and a larger simple ocular cirrus.

Color brownish gray; a dark line downward from eye across cheek; a broad dark bar from posterior part of eye to margin of opercle, widest posteriorly; back light brown with five indistinct pairs of dark brown cross-bars extending to about middle of side, most intense ventrally and coalescing below lateral line; dorsal pale with faint longitudinal stripes, widest on spinous dorsal; anal membrane dusky, rays yellowish; pectoral straw colored, a diffuse black blotch at base, faint dark bar across middle, tip somewhat dusky; caudal translucent with faint dusky cross-bars; first dorsal black. The small specimen has same coloration as preceding except that it has no cross-bar on pectoral. Teeth in both jaws in villiform bands at least two enlarged teeth on lower jaw anteriorly. Scales etenoid; pectoral scaly at base, scales extending some distance on fin.

Alticus atlanticus (Cuvier & Valenciennes).

Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 419.
Salarias atlanticus Cuv. & Val., Hist. Nat. Poiss., 1836, **11**, p. 238 (321).

Five specimens $1\frac{5}{8}$ to $5\frac{3}{8}$ inches long from Chatham Island, shore. M. C. Z. 29447 (2 specimens).

In the smallest specimen the cross-bars on the body are distinct; the upper two thirds and the inner base of pectoral is much lighter than the ground color.

Alticus striatus (Quoy & Gaimard).

Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 423.
Salarias striatus Quoy & Gaimard, Cuv. & Val. Hist. Nat. Poiss., 1836, **11**, p. 228 (309).

Two specimens, M. C. Z. 29436, $2\frac{1}{16}$ and $2\frac{7}{16}$ inches long from Easter Island, shore.

The large female specimen with eggs gives the following measurements: — head 4.41 in length; eye 4.80 in head; interorbital 2 in eye; ocular tentacle, acutely triangular, fringed on one side; nasal cirrus palmate; a simple cirrus on each side of nape at junction of occiput; upper lip with lobate margin; large hooked teeth posteriorly in each jaw; dorsal XII–15, not extending on to the caudal; anal 16, with one papilla in front; no crest.

Color in alcohol, head light brownish, with purplish area on upper posterior part of cheek; a faint dusky, short band-like area at corner of mouth; broad faint dusky bar from front part of each eye across lip, and one midway between; an oblong black spot on side of head, behind eye and directed upward and backward, apparently ocellated in life; no bands or spots evident on throat or gill-membranes; faint brownish saddle-like bar across back at insertion of spinous dorsal, not extending down to pectoral; seven pairs of dark brown bars, somewhat interrupted, on the side of the body, the fourth pair situated under the notch between the dorsals, one of the pairs extending down from posterior part of spinous dorsal, another from origin of soft dorsal; pectoral translucent, punctulate with dusky, most intense on lower rays; ventrals pale, finely punctulate with dusky; spinous dorsal translucent, finely punctulate with dusky, in large rather indefinite spots, approximating two rows, those near the outer margin to some extent coalescing and forming an irregular dusky inframarginal band, margin pale; soft dorsal translucent, finely and faintly punctulate, about three blackish spots on each ray forming about nine or ten downward and backward series or partial series of spots; anal similar in appearance to spinous dorsal; caudal plain translucent with about seven small blackish spots on each ray

forming wavy cross series. The other specimen, a male $2\frac{1}{16}$ inches long taken at the same place and time has similar coloration; dorsal XII–14; anal 16+2; papillae in front. We have four other specimens $1\frac{1}{16}$ to $2\frac{11}{16}$ inches long from Easter Island, shore.

The $2\frac{11}{16}$ inch specimen is a female with eggs, has no crest, and dorsal XII–14; anal 1, 16.

Another $2\frac{5}{16}$ inches long, a female with eggs, no crest; dorsal XII–15; anal 1, 16.

Another $2\frac{5}{16}$ inches long, a female with eggs, no crest; dorsal XII–14; anal 1, 16.

A male $2\frac{7}{8}$ inches long, from Samoa and identified by Jordan and Seale as *A. striatus,* has practically the same coloration except that the markings on the fins are a little coarser and darker and there are white streaks on under part of head (throat) converging backward. This specimen gives the following measurements, head 4.36 in length; depth 5.54; eye 4 in head; interorbital 2.33 in eye; a fringed tentacle on top of eye; nostril tentacle palmate; a simple tentacle on each side of nape; dorsal XII–16; anal 1, 18.

We have compared the type of *A. thalassinus* Jordan and Seale with our specimens and cannot find that it differs. The Type is a young fish and considerably faded, but there are evident traces of the color markings of *A. striatus,* and it agrees in all other respects.

Alticus periophthalmus (Cuvier & Valenciennes).

Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 422.
Salarias periophthalmus Cuv. & Val., Hist. Nat. Poiss., 1836, **11**, p. 311.

Two specimens 1 and $4\frac{1}{4}$ inches long from Manga Reva, outer reef. M. C. Z. 29551 (1 specimen).

The following color note was in bottle with specimen: — "General color yellowish, large blotches brown, small spots red-brown, eye red-brown, dashes on sides pearly, with black margins."

Alticus variolosus (Cuvier & Valenciennes).

Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 424.
Salarias variolosus Cuv. & Val., Hist. Nat. Poiss., 1836, **11**, p. 235 (317).

Three specimens $2\frac{1}{8}$ to $4\frac{1}{8}$ inches long from Easter Island, shore. M. C. Z. 29539 (1 specimen).

One specimen $1\frac{13}{16}$ inches long from La Perouse Bay, Easter Island, shore.

Alticus biseriatus (Cuvier & Valenciennes).

Salarias biseriatus Cuv. & Val., Hist. Nat. Poiss., 1828, **11**, p. 316 (234). Günther, Fische der Südsee, 1877, **6**, p. 208.

Plate 7, fig. 2.

Six specimens $1\frac{7}{8}$ to $2\frac{9}{16}$ inches long from Manga Reva. M. C. Z. 29408 (2 specimens).

The following color note in bottle with specimens: — "General color brownish; spots below 1st dorsal dark brown; black on crest and fins, lighter vermiculations under second dorsal, pearly."

The largest specimen, a male, $2\frac{9}{16}$ inches long, has the following measurements: — Head 4.5 in total length without caudal; depth 5.75; eye 4.00 in head; D. XII, 20; A. 22; soft dorsal separate from caudal fin; interorbital very narrow; ocular cirrus long and fringed on both sides; nasal cirrus small and simple; none on nape; crest well developed.

Color in alcohol, head purplish gray above, very light below, the gray of top of head extending as narrowing streaks across the cheeks, gill-membranes and opercles; two streaks starting at lower posterior margin of eye, extending obliquely backward, uniting behind corner of mouth into a single dark line; a dark line from each corner of mouth on throat, converging posteriorly but not quite meeting; in front of these two similar lines meeting; about eight narrow dark lines or bars across upper lip; crest blue-gray with twelve or fourteen small round black spots on its posterior two thirds and one on anterior portion, a jet black pale edged margin above the posterior spots; pectoral pale, finely punctulate with dusky; spinous dorsal gray with about six large, poorly defined brown spots along base, and a broad irregular brown narrowly pale edged margin, membranes with numerous small brown spots and dots; soft dorsal grayish with a margin similar to spinous dorsal and numerous narrow white lines running obliquely downward and forward; anal pale at base, outer two thirds dusky; caudal with a brown spot at base of middle rays, base of caudal otherwise yellowish, remainder translucent, crossed about its middle with a broad faint brown bar, the lower rays and terminal margin broadly dusky; belly plain white; back and sides, anterior margins of soft dorsal and anal gray with numerous round brownish spots, around which the ground color makes pale vermiculations; about four pairs of broad irregular brown cross-bars on body under soft dorsal and on caudal peduncle; commencing just back of a point above the origin of anal is a longitudinal series of short white lines and spots which termi-

nate at lower edge of brown caudal spot; between this series and the soft dorsal are numerous round white spots and vermiculate white lines.

A female $2\frac{9}{16}$ inches long has the following measurements: — head 4.54 in total length without caudal; depth 5.55; eye 4.05 in head; dorsal XII, 20; anal II, 20; interorbital very narrow; ocular cirrus long and fringed on both sides; nasal cirrus comparatively long and simple; no cirrus on nape; crest well developed.

Color of head and body very similar to that of the male, but on the middle of the under lip there are two short converging lines; pectoral, ventral, anal, and caudal pale, but finely punctulate with dusky; caudal having a yellowish area and brown spots at its base; 1st and 2nd dorsal similar to those of male, but much paler.

Of the remaining four specimens three are females having dorsal XII, 19 and anal ii, 20, the two anterior represented by the ii being shorter than the others, the first papilla-like, and separated from the rest of the fin; the second connected by a membrane and may be considered a ray.

The fourth and smallest specimen is a male having dorsal XII, 20 and anal ii, 21, the anterior of which is a simple papilla and the second a short ray connected by a membrane to the rest of the fin.

These specimens agree perfectly with the description of *Salarias biseriatus* Cuvier and Valenciennes (*loc. cit.*) and the description and figure by Kner in Novara Reise Fische, 1865, p. 197, taf. 8, fig. 4, with the exception that both of these authors state that there are no posterior canine teeth on the lower jaw; the present specimens possess large canine teeth, although their location is such that they might be easily overlooked. Dr. Steindachner has kindly sent us one of Kner's specimens taken at Tahiti. Upon examination we find that it possesses large canines well back in the mouth but in such a position as to be easily overlooked. It is a female without crest, containing well-developed eggs.

Specimens in the Reserve Series of the U. S. Bureau of Fisheries have been misidentified as *Salarias biseriatus* by Jordan and Seale, Bull. U. S. Bur. Fish. 1906, **25**, p. 427. These we describe as

Alticus margaritatus, sp. nov.

Plate 7, fig. 3, Plate 8, fig. 1.

Twenty-seven specimens $\frac{3}{4}$ to $2\frac{5}{8}$ inches long from Pago Pago, Samoa.

The Type, No. 65409 U. S. N. M., a male $2\frac{5}{8}$ inches long has the following measurements: Head 4.66 in total length without caudal; depth 5.35; eye 4.51 in head; dorsal XII, 18; anal 21.

Canines present, orbital cirrus developed only on right side, comparatively long with very short fringes; nasal cirrus on left side simple, on right side with two short branches at base; no cirri on nape; crest long, of moderate height, extending from between eyes almost to first dorsal; dorsal deeply notched; first slightly connected with second by membrane; first dorsal with rather high flexible spines, but somewhat lower than soft dorsal; anal considerably lower than soft dorsal; dorsal and anal entirely separate from caudal.

General color warm brown, paler on belly; head with a slight purplish tinge, darker on snout and lips; only a slight trace of cross-bars; numerous small pale pearly spots, most numerous posteriorly, below median line forming a longitudinal series arranged more or less in pairs; above the median line these having no regular arrangement; larger pale areas on body above anal base. Crest on head dark brown, thickly dotted with small pearly or bluish spots; pectoral dark brown; spinous dorsal dark brown with a series of large oblique oblong black spots, one on each interspinous membrane; second dorsal dark brown with numerous narrow pale, very oblique streaks running upward and backward, their widths about equal to the interspaces, barely perceptible to the naked eye; caudal dark brown, appearing almost black to the naked eye; anal dark brown, with darker margin; ventral short, black.

A cotype, a female $2\frac{5}{16}$ inches long has following measurements:— head 4.25 in total length without caudal; depth about 5.; eye 4.50 in head; dorsal XII, 18; anal i, 20. Cirrus above eyes quite long and strongly fringed; a short simple cirrus above each anterior nostril; no cirrus on nape; crest low, shorter than in male, commencing above posterior margin of eye and extending to junction of nape with occiput.

General body color paler than in male; about six pairs of faintly defined dark brown cross-bars; the pearly spots are more distinct than in male and more numerous anteriorly; those at base of anal scarcely discernible; head covered with small dusky spots; crest without white dots; vertical fins paler than in male; large black spots present only on first and second interspinous membranes; soft dorsal similar to that of male but paler; anal paler, each ray tipped with white; caudal lighter than in male; pectoral dusky olive; ventral pale, punctulated with dusky dots.

Younger individuals much paler, cross-bars and spots becoming more distinct; some with an oblong dusky spot behind eye. The smaller specimens have no crest. The fin-ray counts in these specimens run as follows:— dorsal XII–XIII, 17 to 18; anal 19 to 21.

Salarias lineatus Cuvier & Valenciennes.

Hist. Nat. Poiss., 1836, **11**, p. 232 (314). Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 426.

Four specimens, three of them females $3\frac{1}{2}$ to $4\frac{1}{2}$ inches long and one male $4\frac{3}{8}$ inches long, all from Manga Reva, Paumotus. M. C. Z. 29537 (2 specimens).

The following color note was found with these: — "General color brownish slate; stripes pale greenish, black and white margins on the soft dorsal, the brown stippling [on] caudal parts."

Salarias edentulus (Bloch & Schneider).

Günther, Fische der Südsee, 1877, **6**, p. 206, pl. 117, fig. A.
Blennius edentulus Bloch & Schneider, Syst. Ichth., 1801, p. 172.

Thirty-nine specimens, $1\frac{1}{4}$ to $4\frac{7}{8}$ inches long from Manga Reva. M. C. Z. 29422 (9 specimens).

The following color note was found with these specimens: — "Those with crest, bars slate light green, belly white, lips and chin darker. Tip of anal rays pale slate, membrane nearly black. In some, brown vermiculations over green bars. Those without crest — similar to others, with dark brown spots on caudal portion and dorsal and anal fin."

These specimens bear out the conclusions of Günther (*loc. cit.*) regarding the sex of this species and the identity of *S. edentulus* and *S. rivulatus*. Eleven of these are adult males $3\frac{3}{16}$ to $4\frac{1}{16}$ inches long, possessing the color of *S. rivulatus* and the crest on the head.

Twenty-three of these, $2\frac{13}{16}$ to $4\frac{7}{8}$ inches long are adult females, of these twenty are without a crest, or with a slight indication of crest, the remaining three, which are the largest have a low but distinct crest. These conform in color with *S. edentulus*. There are five young individuals $1\frac{1}{4}$ to $1\frac{3}{8}$ inches long, which do not show any crest, and the coloration is not easily made out. All of the above of both sexes in addition to the fringed cilia on the nostril and the simple one above the eye, have one on each side of the nape close to the occiput.

BROTULIDAE.

Ogilbia ventralis (Gill).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2503.
Brosmophycis ventralis Gill, Proc. Acad. Nat. Sci. Phil., 1863, p. 253.

Two specimens $2\frac{9}{16}$ and $3\frac{5}{8}$ inches long from Acapulco. M. C. Z. 29541 (1 specimen).

The statement by Jordan and Evermann (*loc. cit.*) that the snout is 7 in head must be a mistake as Gill gives it as 5 and from an examination of his Types and of our specimens it is found to be $4\frac{1}{2}$ to 5, depending somewhat on the size of the specimen.

Petrotyx hopkinsi Heller & Snodgrass.

Proc. Wash. Acad. Sci., 1903, **5**, p. 222, pl. 18.

One specimen $5\frac{5}{8}$ inches long from Chatham Island, shore.

BATRACHOIDIDAE.

Batrachoides pacifici (Günther).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2314.
Batrachus pacifici Günther, Cat., 1861, **3**, p. 173.

Two examples, Nos. 3140, 3141, M. C. Z. 29712, $8\frac{1}{2}$ and 11 inches long from Panama Bay.

GOBIESOCIDAE.

Gobiesox erythrops JORDAN & GILBERT.

Proc. U. S. Nat. Mus., 1882, **4**, p. 360.

One specimen $1\frac{3}{8}$ inches long from Chatham Island.

Arbaciosa truncata HELLER & SNODGRASS.

Proc. Wash. Acad. Sci., 1903, **5**, p. 216, pl. 14.

Twenty-one specimens, $1\frac{3}{16}$ to $1\frac{3}{4}$ inches long from Chatham Island, shore.

These specimens agree very well with the original description except that the prevailing ground color of the back is reddish brown instead of olive-yellow. The character of the teeth is as stated by Heller and Snodgrass, the principal difference between this species and *A. zebra*.

Arbaciosa zebra (JORDAN & GILBERT).

JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2341.
Gobiesox zebra JORDAN & GILBERT, Proc. U. S. Nat. Mus., 1882, **4**, p. 359.

Seven specimens $\frac{13}{16}$ to $1\frac{5}{16}$ inches long from Toboguilla Island, M. C. Z. 29602 (2 specimens).

ECHENEIDIDAE.

Echeneis remora LINNÉ.

Syst. Nat., ed. 10, 1758, p. 260.

Two specimens, Nos. 3205, M. C. Z. 29714, 3206, $6\frac{1}{9}$ to $7\frac{1}{2}$ inches long from Station 4715, Lat. 2°, 40.4′ S., Long. 90°, 19.3′ W., taken from a shark.

PLEURONECTIDAE.

Platophrys constellatus JORDAN.

Rept. U. S. Fish. Comm. for 1886, 1889, p. 264, 266.

Number 3288, a deformed specimen lacking caudal and caudal peduncle, $7\frac{1}{2}$ inches long, from Manga Reva.

? Platophrys leopardinus (GÜNTHER).

JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2666.
Rhomboidichthys leopardinus GÜNTHER, Cat., 1862, **4**, p. 434.

Plate 8, fig. 2.

Sixteen specimens, larval forms, ranging in length from $\frac{1}{2}$ to $1\frac{11}{16}$ inches, from the surface at Station 4640, Lat. 0°, 39.4′ N.; Long. 88°, 11′ W.

Another specimen, M. C. Z. 29605, $9\frac{9}{16}$ inches long from Station 4588, Lat. 19°, 52′ N.; Long. 106°, 22′ W.

Another specimen 1 inch long from Station 4714, Lat. 4°, 19′ S.; Long. 91°, 28.5′ W. Dorsal 92; anal 65.

One specimen $\frac{13}{16}$ inches long from Station 4644, Lat. 2°, 13.3′ S.; Long. 89°, 42.2′ W. Dorsal 87; anal 68.

One specimen $\frac{11}{16}$ inches long from Station 4716, Lat. 2°, 18.5′ S.; Long. 90°, 2.6′ W. Dorsal 87; anal 65.

One specimen $1\frac{1}{4}$ inches long from Station 4592, Lat. 18° 20′ N.; Long. 103°, 40′ W.

One specimen, $\frac{7}{8}$ inch long from Station 4611, Lat. 10° 33′ N.; Long. 88°, 30′ W.

These specimens ranging gradually from $\frac{1}{2}$ to $1\frac{11}{16}$ inches have the eyes symmetrical. The eyes are just as symmetrical in the largest as in the smallest and the structure of the specimens superficially shows no great difference in the various sizes. Dorsal 86 to 90; anal 65 to 68. These specimens are provisionally identified with this species, mainly because they agree in dorsal fin ray counts more closely than with *P. constellatus*, the other species recorded from the Galapagos Islands. They show no color markings or pigmentation.

SOLEIDAE.

Achirus mazatlanus (Steindachner).

Jordan, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 505.
Solea mazatlanus Steindachner, Sitzb. Ak. Wiss. Wien, 1869, **60**, p. 267.

One specimen, $4\frac{3}{4}$ inches long from Panama Market, October 28, 1904.

Depth 1.60 in length without caudal; head 3.5; gape 2.95 in head; eye 10.2; interorbital 1 in eye; scales about 70; dorsal 57; anal 45; pectoral 5, middle ray about twice as long as the others; no pectoral on blind side; two ventrals, each consisting of five rays, that on the eyed side on the ridge and continuous with anal, somewhat lower on other side and not continuous; upper and lower margins of caudal rounded, the rays graduated in length from the base to the fifth ray, in each margin, the fourth and fifth rays longest and produced somewhat beyond the straight terminal margin of the fin; each caudal lobe about 1.33 in head; middle ray 1.55 in head; longest dorsal ray 1.75 in head; longest anal ray 1.7 in head; these longest dorsal and anal rays are posterior to middle of body which gives the fish an ovate outline. Developed scales about seventy, strongly ctenoid on body, and vertical fins and on both sides of fish. Scales of

the eyed side of head ctenoid, those of other side, when present, merely ciliated; opercle and posterior and inferior borders of preopercle scaleless, except about three rows on upper posterior edge of opercle; head everywhere on eyed side thickly covered with fine pale cilia; lower lip with a fringe of large cilia; blind side of head in front with low, strongly ciliated folds or flaps; numerous fine cilia everywhere on the eyed side, anteriorly some of them black, more numerous on the rays of the fins; on blind side cilia are not so numerous on body, groups of them are arranged along the lateral line.

Color on eyed side, dark gray, body crossed by faint, fine, hardly distinguishable dusky lines; vertical fins and caudal gradually darker toward margin, with a narrow pale margin; blind side of head and body white.

This specimen agrees closely with *A. mazatlanus*, differing only in the form of the caudal, which is slightly lunate. This character alone and in but one specimen is scarcely sufficient to justify the description of a new species.

Achirus klunzingeri (STEINDACHNER).

JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2697.
Solea klunzingeri STEINDACHNER, Denk. K. Ak. Wiss. Wien, 1880, **42**, p. 96, pl. 9, fig. 3.

No. 3138, a specimen $5\frac{5}{8}$ inches long from Panama.

Dorsal 61; anal 46; ventral 5; pectoral 6.

Achirus fonsecensis (GÜNTHER).

JORDAN & EVERMANN, Bull. 47, U. S. Nat. Mus., 1898, pt. 3, p. 2699.
Solea fonsecensis GÜNTHER, Cat., 1862, **4**, p. 475.

No. 3139, a specimen $7\frac{1}{2}$ inches long from Panama.

Dorsal 58; anal 42; ventral 5; pectoral 3, much shorter than eye.

Symphurus atramentatus JORDAN & BOLLMAN.

Proc. U. S. Nat. Mus., 1890, **12**, p. 177. SNODGRASS & HELLER, Proc. Wash. Acad. Sci., 1905, **6**, p. 423.

Plate 8, fig. 3.

One specimen 1.62 inches long from Station 4640, Lat. 0°, 39.4′ N.; Long. 88°, 11′ W., taken at surface. This Station is near Galapagos Islands. We provisionally identify the specimen with this species. The identification is not at all certain and is made solely because the species has been recorded from the Galapagos and because it agrees very well in vertical fin rays, the dorsal having 100 and anal 80 rays.

It is a larval form without color-markings; the eye has apparently just

begun its migration from the right to the left side, and what appears to be a yolk-sac is not absorbed. It would almost seem that such a large larval form must be abnormal.

BALISTIDAE.

Balistes capistratus Shaw.

Gen. Zool., 1804, 5, p. 417. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1704.

One specimen, No. 3322, $10\frac{3}{4}$ inches long from Acapulco has the following counts: — Orbit 4.29 in snout; D. III–31; A. 29; scales 57.

Another specimen, No. 3323, $6\frac{7}{8}$ inches long from the same locality has orbit 3.27 in snout; D. III–31; A. 28; scales 65.

One specimen, No. 3116, M. C. Z. 29716, $13\frac{3}{4}$ inches long from Perico Island, Bay of Panama:

Head from upper end of gill-opening to tip of snout including upper lip, 2.89 in length, not including upper lip 3.08; snout measured from orbit not including upper lip 1.28 in head; orbit 4.62 in snout; dorsal III–31; anal 29; scales from upper end of gill-opening to scale ending on caudal 53; transverse scales from front of anal to front of dorsal 38, counting upward and backward to middle of soft dorsal 29.

Another specimen, No. 3117, M. C. Z. 29628, $9\frac{3}{4}$ inches long from Perico Island:

Head including upper lip 2.76 in length, not including upper lip 3; snout without upper lip 1.40 in head; orbit 5.68 in snout; D. III–32; A. 29; scales in longitudinal series 64; in transverse series, from front of anal to front of dorsal 39.

One specimen, No. 3129, M. C. Z. 29661, $10\frac{1}{8}$ inches long from Toboguilla Island, Bay of Panama has orbit in snout 4.30; D. III–30; A. 28; scales 64.

Another specimen, No. 3131, $8\frac{1}{2}$ inches long from Toboguilla Island, has orbit 3.53 in snout; D. III–31; A. 28; scales in longitudinal series 58.

A third specimen, No. 3130, $7\frac{1}{4}$ inches long from Toboguilla Island, has orbit 3.45 in snout; D. III–32; A. 28; scales 64.

A fourth specimen $4\frac{5}{8}$ inches long from Toboguilla Island, among coral in two fathoms of water, has D. 31; A. 29; scales 63. M. C. Z. 29557 (1 specimen).

No. 3116 from Perico Island and No. 3322 from Acapulco have the band encircling the snout very distinct; in the other specimens it is faded.

Balistes naufragium Jordan & Starks.

Proc. Cal. Acad. Sci., 1895, ser. 2, 5, p. 488.

One specimen, No. 3115, 9 inches long, from Perico Island, Panama Bay.

D. III–26; A. 24; scales 50.

Canthidermis angulosus (Quoy & Gaimard).

?Snodgrass & Heller, Proc. Wash. Acad. Sci., 1905, **6**, p. 407.
Balistes angulosus Quoy & Gaimard, Voy. Uranie. Zool., 1824, p. 210.

One specimen $\frac{27}{32}$ inches long from Station 4619, Lat. 7°, 15′ N.; Long. 82°, 8′ W.

D. III–21; A. 20; scales about 45.

Color dark brown, small pale white spots scattered over body; pectoral yellowish; dorsal and anal yellowish with dark brown base; caudal pale yellowish.

Two specimens $\frac{7}{16}$ and $\frac{19}{32}$ inches long from Station 4619, Lat. 7°, 15′ N.; Long. 82°, 8′ W. M. C. Z. 29586 (2 specimens).

One specimen $1\frac{5}{16}$ inches long from Station 4594, Lat. 17°, 20′ N.; Long. 101°, 32′ W.

Balistes adspersus Tschudi (Fauna Peruana, Icthyology, 1845, p. 31) is probably this species.

Xanthichthys lineopunctatus (Holland).

Jordan & Evermann, Bull. U. S. Fish. Comm., 1903, **23**, p. 416, fig. 182.
Balistes lineopunctatus Holland, Ann. Sci. Nat., 1854, ser. 4, **1**, p. 65.

Three specimens, Nos. 3175–77, respectively $5\frac{3}{8}$, $6\frac{3}{4}$ and $7\frac{1}{8}$ inches long, and another $7\frac{3}{4}$ inches long, from Cook Bay, Easter Island. M. C. Z. 29374 (1 specimen).

The specimen $7\frac{3}{4}$ inches long was taken in fourteen fathoms of water.

No. 3175, M. C. Z. 29627, has 30 dorsal rays; 27 anal rays; 50 scales in longitudinal series and 23 in transverse series counted from front of anal to first dorsal.

No. 3176 has 30 dorsal rays and 28 anal rays.

No. 3177 has 29 dorsal rays and 26 anal rays.

MONACANTHIDAE.

Monacanthus cirrhifer Temminck & Schlegel.

Temminck & Schlegel, Fauna Japonica, 1850, p. 290, pl. 130, fig. 1.

No. 3199, a specimen $6\frac{5}{8}$ inches long from Cook Bay, Easter Island.

This specimen agrees fairly well with the description and figure of this species given by Temminck & Schlegel (*loc. cit.*) and by Jordan and Fowler, Proc. U. S. Nat. Mus., **25**, p. 264.

Head 3 in length; depth from front of dorsal to tip of ventral spine 1.72,

from soft dorsal to front of anal 2.26; snout 1.17 in head; orbit 4.6; dorsal spine 2.3, and reaching half way from its base to soft dorsal; dorsal I, 35; anal 32.

Color dark brown with very faint traces of cross-bars; dorsal spine banded; soft dorsal and anal yellowish; caudal darker than body; broad bars across chin, throat and snout.

OSTRACIIDAE.

Ostracion tuberculatum Linné.

Syst. Nat. ed. 10, 1758, p. 331. Jordan & Seale, Bull. U. S. Bur. Fish., 1905, **25**, p. 367.

Two specimens 5 and $5\frac{11}{16}$ inches long from Manga Reva. M. C. Z. 29696 (1 specimen).

TETRAODONTIDAE.

Spheroides angusticeps (Jenyns).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1731.
Tetrodon angusticeps Jenyns, Zool. Voy. Beagle. Fish, 1842, pt. 4, p. 154, pl. 28.

Two examples, No. 3251, 3252, M. C. Z. 29664, respectively 12 and $10\frac{1}{8}$ inches long from Wreck Bay, Chatham Island.

Spheroides lobatus (Steindachner).

Jordan, Proc. Cal. Acad. Sci., 1895, ser. 2, **5**, p. 490.
Canthogaster ? lobatus Steindachner, Sitzb. Ak. Wiss. Wien, 1870, **61**, p. 18, pl. 5, fig. 3.

One specimen $2\frac{5}{8}$ inches long from Toboguilla Island, two fathoms of water among coral.

Spheroides annulatus (Jenyns).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1735.
Tetrodon annulatus Jenyns, Zool. Voy. Beagle. Fish, 1842, pt. 4, p. 153.

One specimen $8\frac{1}{2}$ inches long, off Perico Island, Panama Bay in six feet of water.

Three specimens, No. 3208–3210, M. C. Z. 29657, respectively $11\frac{3}{4}$, $8\frac{1}{8}$ and 12 inches long from Wreck Bay, Chatham Island.

Spheroides formosus (Günther).

Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1736.
Tetrodon formosus Günther, Cat., 1870, **8**, p. 283.

One specimen 9 inches long from Panama Bay.

Two specimens $1\frac{1}{16}$ and $9\frac{1}{2}$ inches long from off Perico Island, in six feet of water. M. C. Z. 29693 (1 specimen).

Tetraodon hispidus Linné.

Syst. Nat., ed. 10, 1758, p. 333. Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 159.

No. 3120, a specimen $12\frac{1}{2}$ inches long from Naos Island, Panama Bay.

Tetraodon setosus Rosa Smith.

Bull. Cal. Acad. Sci., 1886, **2**, p. 6. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1739.

Five specimens, No. 3334, M. C. Z. 29653, 3357–9, and 3388, M. C. Z. 29656, respectively $9\frac{1}{2}$, 10, 10, $11\frac{1}{2}$, and $8\frac{1}{4}$ inches long from Acapulco.

Nos. 3357–9, are dark with numerous light spots over the entire head and body and the fins, except in No. 3357; all the fins have a rather broad margin of yellowish, which shows no spots on the outer half of pectoral. Nos. 3334 and 3388 are yellow with a few scattered small black spots, caudal, dorsal, and pectoral with a dusky appearance; No. 3388 is somewhat blotched with black back of the pectoral fin.

Canthigaster solandri (Richardson).

Jordan & Seale, Bull. U. S. Bur. Fish., 1906, **25**, p. 371.
Tetraodon solandri Richardson, Zool. Voy. Sulphur. Ichth., 1845, p. 125, pl. 57, figs. 4–6.

One specimen 3 inches long from Manga Reva, coral.

Eumycterias punctatissimus (Günther).

Gilbert & Starks, Mem. Cal. Acad. Sci., 1904, **4**, p. 160, pl. 23, fig. 46.
Tetrodon punctatissimus Günther, Cat., 1870, **8**, p. 302.

Four specimens 2 to $2\frac{3}{8}$ inches long from Toboguilla Island, in two fathoms, coral.

One specimen $2\frac{3}{4}$ inches long from Acapulco.

One specimen $1\frac{7}{8}$ inches long from Chatham Island, shore. M. C. Z. 29548.

Three specimens $\frac{3}{4}$ to 1 inch long from Perico Island tide pool. M. C. Z. 29371 (2 specimens).

In the specimens from Perico Island, the black ocellus with light margin below the dorsal shows plainly.

DIODONTIDAE.

Diodon hystrix Linné.

Syst. Nat. ed. 10, 1758, p. 335. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1745.

One specimen $\frac{17}{16}$ inches long, from Station 4605, Lat. 12°, 21′ N.; Long. 92°, 13′ W.

Diodon holacanthus Linné.

Syst. Nat. ed. 10, 1758, p. 335. Jordan & Evermann, Bull. 47, U. S. Nat. Mus., 1898, pt. 2, p. 1746.

One specimen $6\frac{1}{2}$ inches long from Panama Bay.

DISTRIBUTION OF THE SPECIES.

	Coast of Mexico.	Coast of Central America.	Galapagos Islands.	Off coast of Peru.	Between Callao, Peru and Easter Island.	Between Galapagos Islands and Easter Island.	Easter Island.	Between Galapagos Islands and Manga Reva.	Manga Reva.	Between Manga Reva and Acapulco.
Raja aguja				+						
Urolophus halleri	+									
" aspidurus		+								
" rogersi	+									
Sardinella thrissina	+	+								
Opisthopterus dovii		+								
Anchovia opercularis		+								
" macrolepidota		+								
" ischana	+									
Qassiremus evionthas			+							
Muraena clepsydra		+								
" lentiginosa	+									
Gymnothorax dovii							+			
Uropterygius necturus	+									
Sciadeichthys troscheli		+								
Poecilia sphenops		+								
Tylosurus stolzmanni			+							
Scombresox sp.	+			+		+				
Hyporhamphus unifasciatus	+									
" roberti	+									
Hemiramphus saltator	+									
Exocoetus volitans		+	+			+		+		
Cypsilurus poecilopterus					+					
" sp.		+								
Fodiator acutus	+									
?Exonautes sp.		+	+							+
Kirtlandia gilberti		+								
Mugil hospes	+									
Chaenomugil proboscideus	+	+	+							
Neomyxus ciliilabis									+	
" chaptalii			+							
Sphyraena idiastes			+							
Polydactylus approximans		+								
" opercularis		+								
Siphostoma californiensis	+									
Myripristis occidentalis	+	+								
" microphthalmus									+	
" pralinius							+			
" multiradiatus									+	
" sealei			+							
Holocentrus suborbitalis	+	+	+							
" punctatissimus							+			
" diadema									+	
" sammara									+	
" opercularis									+	

DISTRIBUTION OF THE SPECIES—Continued.

	Coast of Mexico.	Coast of Central America.	Galapagos Islands.[1]	Off coast of Peru.	Between Callao, Peru and Easter Island.	Between Galapagos Islands and Easter Islands.	Easter Island.	Between Galapagos Islands and Manga Reva.	Manga Reva.	Between Manga Reva and Acapulco.
Scomberomorus sierra		+								
Naucrates ductor						+				
Platystethus cultratus							+			
Decapterus sanctae-helenae							+			
Hemicaranx atrimanus		+								
" zelotes		+								
" leucurus		+								
Caranx hippos		+								
" caballus		+								
" marginatus	+	+								
" guara							+			
Vomer setapinnis		+								
Chloroscombrus orqueta		+								
Trachinotus rhodopus	+	+								
Nomeus gronovii										+
Coryphaena hippurus		+								
Coryphaena equisetis		+						+		
Centropomus robalito		+								
Amia exostigma									+	
" savayensis									+	
" erythrina									+	
" doryssa									+	
" dovii		+								
" atradorsata			+							
" retrosella	+									
Fowleria isostigma									+	
Parania lineatus									+	
Kuhlia nutabunda							+			
" sandvicensis									+	
Acanthistius cinctus							+			
Trachypoma macracanthum							+			
Petrometopon panamensis	+	+								
Epinephelus analogus		+								
labriformis	+	+	+							
merra									+	
socialis									+	
Dermatolepis punctatus	+									
Prionodes fasciatus	+									
Paranthias furcifer		+								
Rhegma thaumasium		+								
Lobotes pacificus	+									
Hoplopagrus guentheri	+									
Lutianus argentiventris	+	+								
guttatus	+	+								
aratus		+								
marginatus									+	
Rabirubia inermis	+									
Xenocys jessiae			+							
Xenichthys xanti		+								
agassizii			+							

DISTRIBUTION OF THE SPECIES—Continued.

	Coast of Mexico.	Coast of Central America.	Galapagos Islands.	Off coast of Peru.	Between Callao, Peru and Easter Island.	Between Galapagos Islands and Easter Islands.	Easter Island.	Between Galapagos Islands and Manga Reva.	Manga Reva.	Between Manga Reva and Acapulco.
Caesio tile									+	
Haemulon sexfasciatum	+									
scudderi	+	+								
steindachneri	+	+								
Lythrulon flaviguttatum	+	+								
Orthostoechus maculicauda	+									
Anisotremus interruptus	+									
caesius	+									
surinamensis	+		+							
Orthopristis chalceus		+								
Gnathodentex aureolineatus									+	
Lethrinus rostratus									+	
Eucinostomus californiensis	+	+	+							
Xystaema cinereum	+									
Gerres peruvianus		+								
Doydixodon freminvillei			+							
Kyphosus elegans	+	+								
cinerascens							+			
Girella nebulosa							+			
Upeneus xanthogrammus	+									
Pseudupeneus multifasciatus							+			
Mulloides auriflamma									+	
samoensis									+	
rathbuni	+									
Isopisthus remifer		+								
Corvula macrops	+									
Ophioscion perissa			+							
Micropogon altipinnis		+								
Polyclemus goodei		+								
Eques fuscovittatus	+									
Azurina upalama			+							
Pomacentrus rectifraenum	+	+								
gilli	+	+								
arcifrons			+							
flavilatus	+	+								
jenkinsi							+			
leucorus			+							
Abudefduf sordidus									+	
septemfasciatus									+	
saxatilis	+	+	+							
declivifrons	+	+								
glaucus									+	
Dascyllus aruanus									+	
Chromis caeruleus									+	
atrilobatus	+	+								
Microspathodon dorsalis	+		+							
Bodianus diplotaenius		+								
eclancheri			+							
Pseudolabrus inscriptus							+			

DISTRIBUTION OF THE SPECIES — Continued.

	Coast of Mexico.	Coast of Central America.	Galapagos Islands.	Off coast of Peru.	Between Callao, Peru and Easter Island.	Between Galapagos Islands and Easter Island.	Easter Island.	Between Galapagos Islands and Manga Reva.	Manga Reva.	Between Manga Reva and Acapulco.
Halichoeres sellifer	+									
dispilus	+									
Pseudojulis notospilus	+	+								
Cheilio inermis							+			
Thalassoma duperry	+	+								
purpureum			+							
umbrostigma							+			
lucasanum	+	+								
Cheilinus undulatus									+	
Callyodon perrico		+								
noyesi			+							
Chaetodon nigrirostris	+	+								
humeralis	+	+								
lineolatus									+	
trifasciatus									+	
Heniochus monoceros									+	
Pomacanthus zonipectus		+								
Holacanthus passer	+	+	+							
Teuthis triostegus									+	
" umbra							+			
Ctenochaetus striatus									+	
Zebrasoma veliferum									+	
Xesurus punctatus	+									
clarionis			+							
Siganus rostratus									+	
Sebastopsis xyris			+							
Scorpaena mystes	+		+							
?Scorpaena histrio			+							
Dormitator maculatus		+								
Gymnelcotris seminudus	+									
Gobius rhizophora			+							
gilberti			+							
Mapo soporator		+	+						+	
Kelloggella oligolepis							+			
Gobiosoma crescentale			+							
Gillelus rubellulus			+							
Dactyloscopus pectoralis			+							
Enneanectes carminalis	+									
Malacoctenus delalandii	+	+								
zonogaster			+							
Labrisomus jenkinsi			+							
Mnierpes macrocephalus	+									
Auchenopterus monophthalmus		+								
?Emnion bristolae	+									
Runula azalea	+		+							
Dialommus fuscus		+	+							
Enneapterygius corallicola			+							
Alticus atlanticus			+							
striatus							+			

DISTRIBUTION OF THE SPECIES—Concluded.

	Coast of Mexico.	Coast of Central America.	Galapagos Islands.	Off coast of Peru.	Between Callao, Peru and Easter Island.	Between Galapagos Islands and Easter Island.	Easter Island.	Between Galapagos Islands and Manga Reva.	Manga Reva.	Between Manga Reva and Acapulco.
Alticus periophthalmus									+	
variolosus							+			
biseriatus									+	
Salarias lineatus									+	
edentulus									+	
Ogilbia ventralis	+									
Petrotyx hopkinsi			+							
Batrachoides pacifici		+								
Gobiesox erythrops			+							
Arbaciosa truncata			+							
zebra		+								
Echeneis remora						+				
Platophrys constellatus									+	
?Platophrys leopardinus	+	+	+			+				
Achirus mazatlanus		+								
klunzingeri		+								
fonsecensis		+								
Symphurus atramentatus			+							
Balistes capistratus	+	+								
naufragium		+								
Canthidermis angulosus	+	+								
Xanthichthys lineopunctatus							+			
Monacanthus cirrhifer							+			
Ostracion tuberculatum									+	
Spheroides angusticeps			+							
lobatus		+								
annulatus		+	+							
formosus			+							
Tetraodon hispidus			+							
setosus		+								
Canthigaster solandri									+	
Eumycterias punctatissimus	+	+	+							
Diodon hystrix	+									
holacanthus		+								

DESCRIPTION OF THE PLATES.

Plate 1.

Figs. 1, 2. Raja aguja Kendall and Radcliffe, page 78.

Plate 2.

Fig. 1. Myripristis occidentalis (Gill), page 90.
Fig. 2. Holocentrus suborbitalis Gill, page 94.
Fig. 3. Platystethus cultratus (Bloch and Schneider), page 97.

Plate 3.

Fig. 1. Kuhlia mutabunda Kendall and Radcliffe, page 105.
Fig. 2. Girella nebulosa Kendall and Radcliffe, page 120.

Plate 4.

Fig. 1. Girella nebulosa Kendall and Radcliffe, page 120.
Fig. 2. Girella nebulosa Kendall and Radcliffe, page 120.
Fig. 3. Ophioscion perissa (Heller and Snodgrass), page 125.

Plate 5.

Fig. 1. Eques fuscovittatus Kendall and Radcliffe, page 125.
Fig. 2. Pseudolabrus inscriptus (Richardson), page 137.

Plate 6.

Fig. 1. Pseudolabrus inscriptus (Richardson), page 137.
Fig. 2. Pseudojulis notospilus Günther, page 139.
Fig. 3. Gillelus rubellulus Kendall and Radcliffe, page 148.

Plate 7.

Fig. 1. Enneapterygius corallicola Kendall and Radcliffe, page 153.
Fig. 2. Alticus biseriatus (Cuvier and Valenciennes), page 156.
Fig. 3. Alticus margaritatus Kendall and Radcliffe, ♂, page 157.

Plate 8.

Fig. 1. Alticus margaritatus Kendall and Radcliffe, ♀, page 157.
Fig. 2. ? Platophrys leopardinus (Günther), page 160.
Fig. 3. Symphurus atramentatus Jordan and Bollman, page 162.

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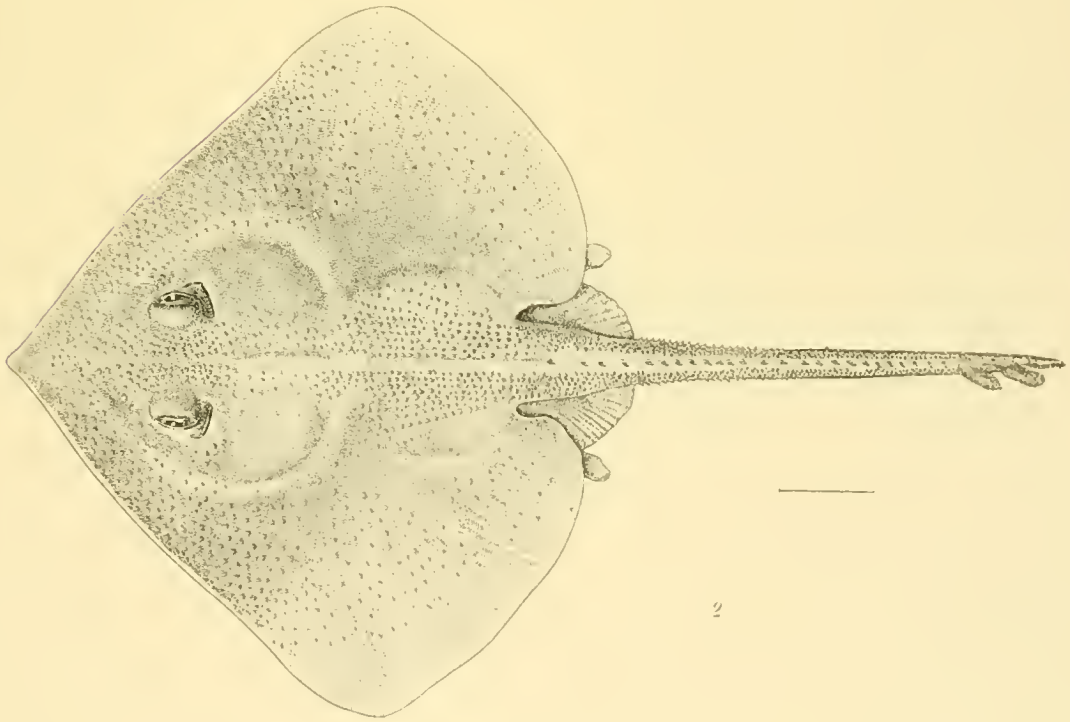

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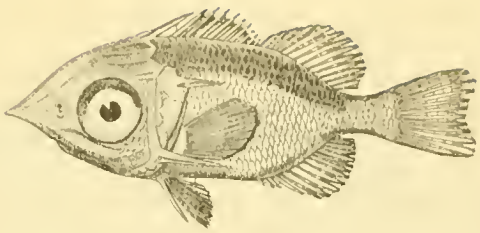

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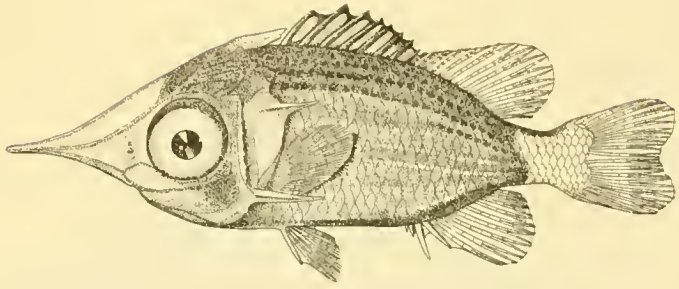

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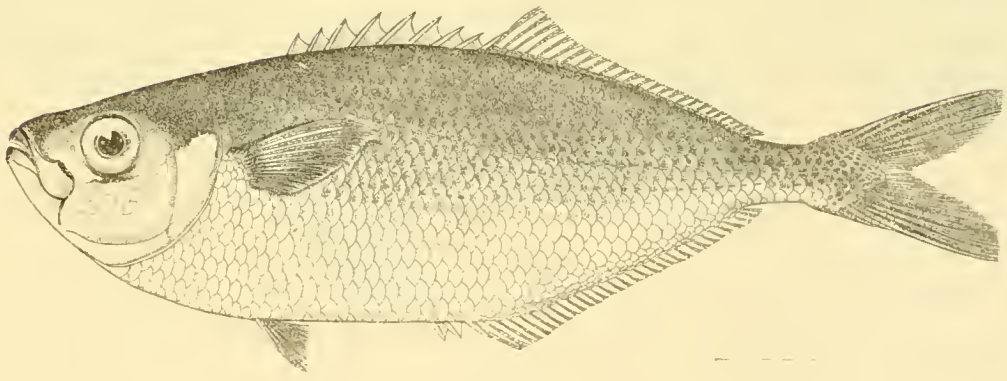

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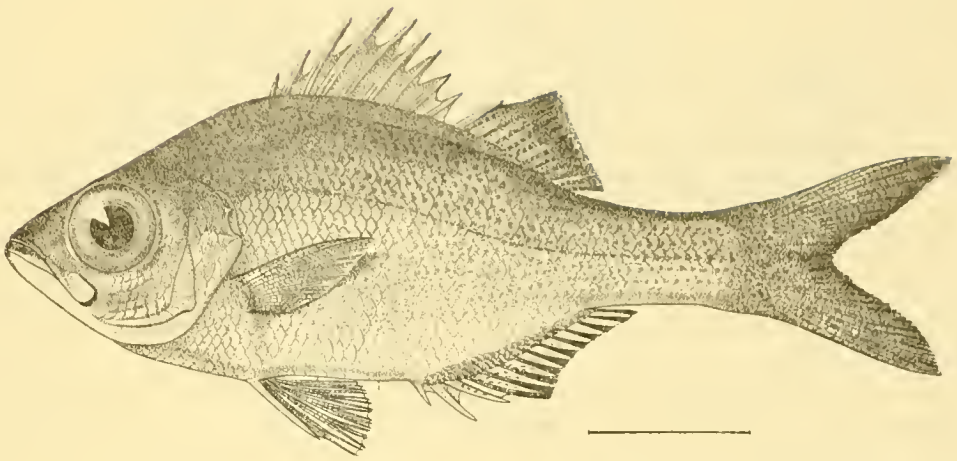

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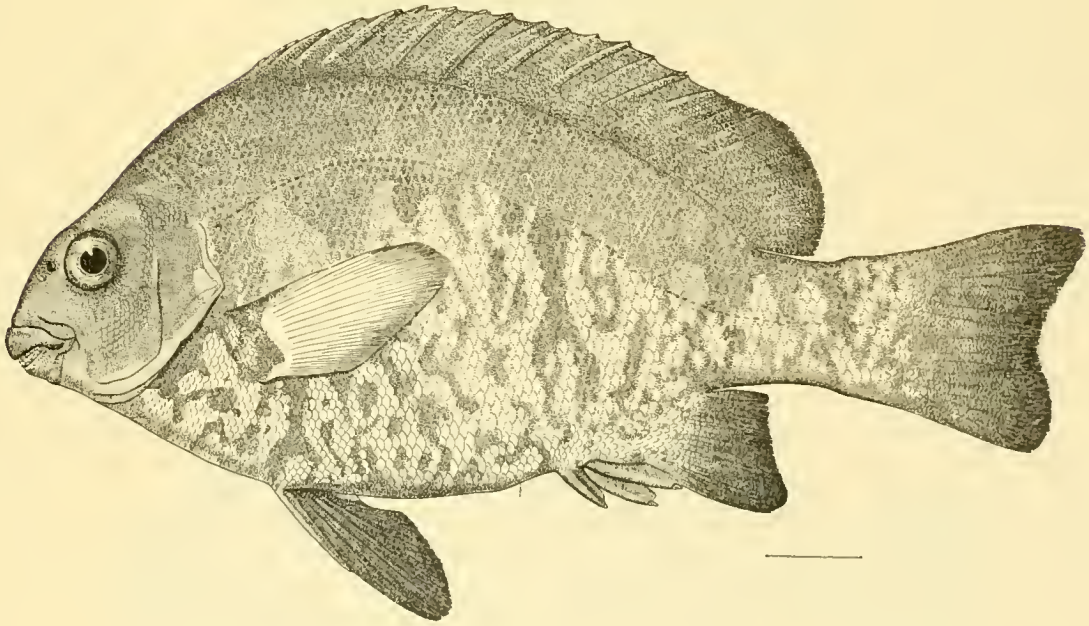

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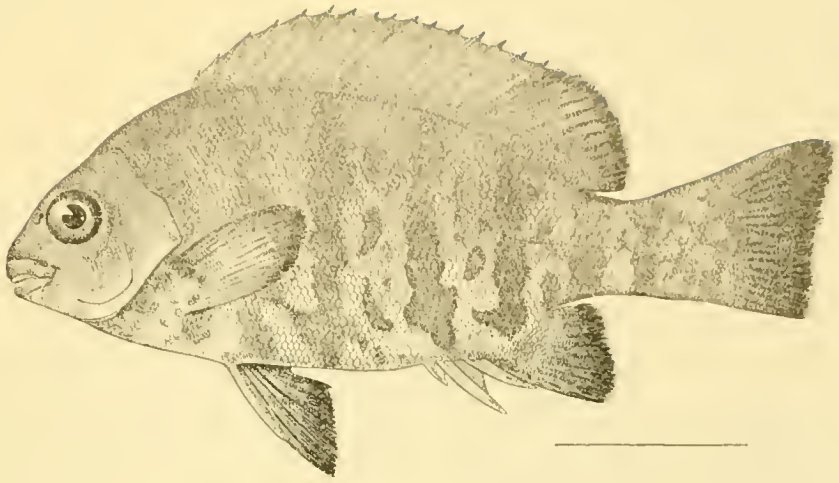

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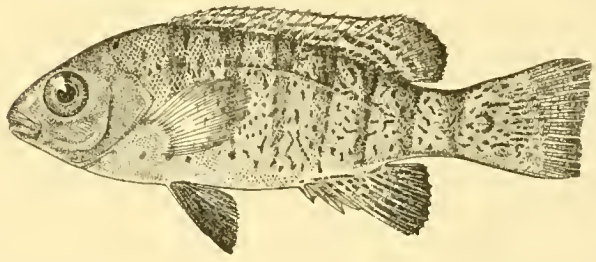

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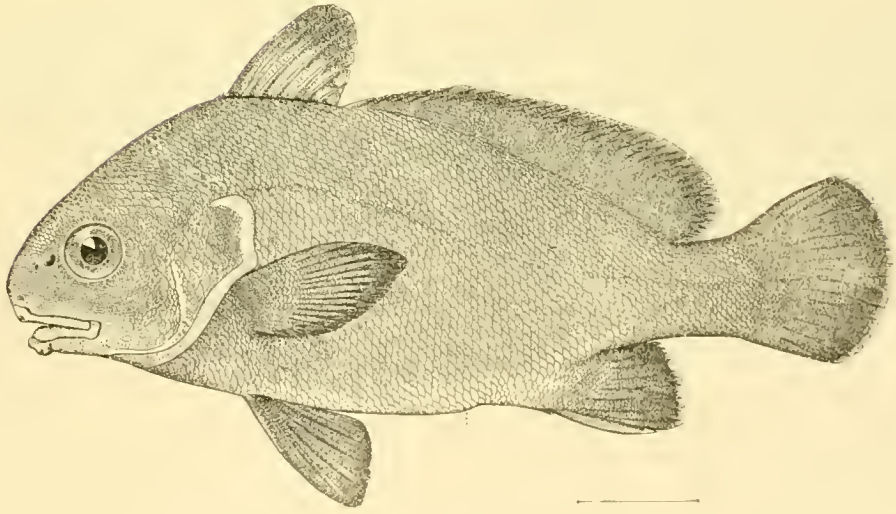

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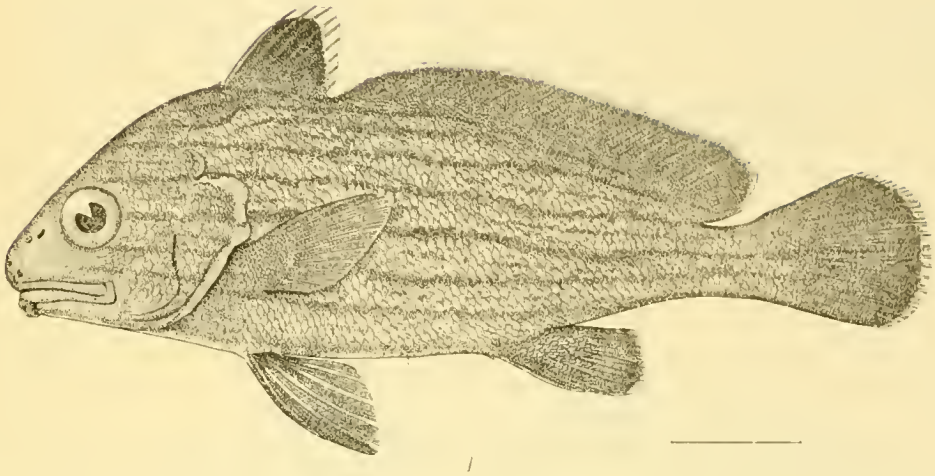

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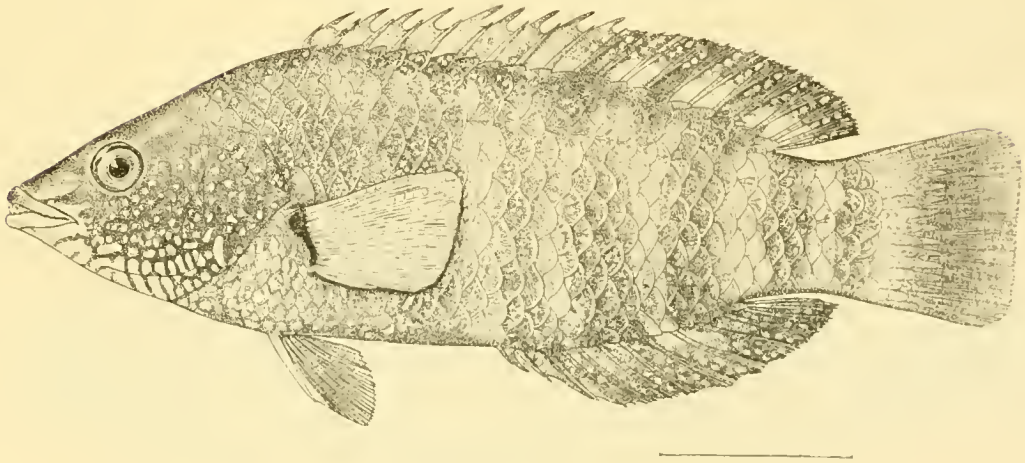

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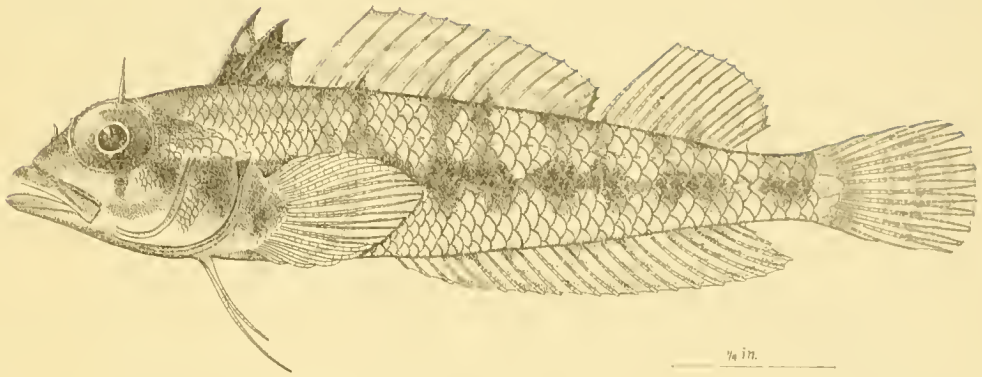

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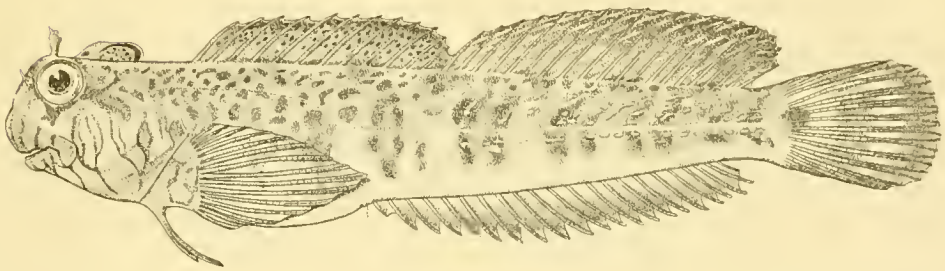

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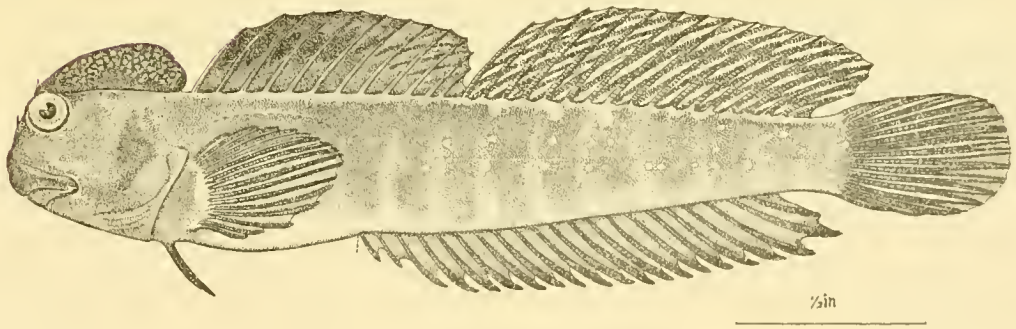
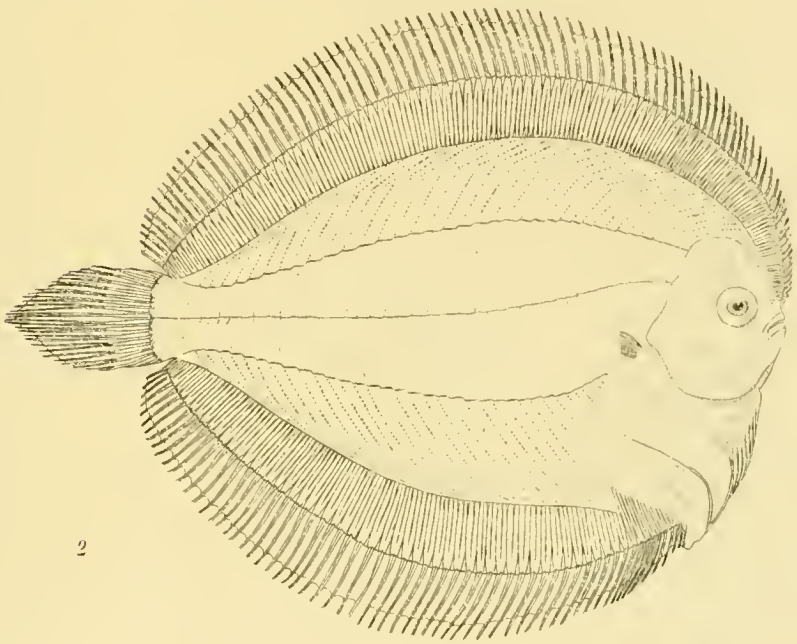


3

1



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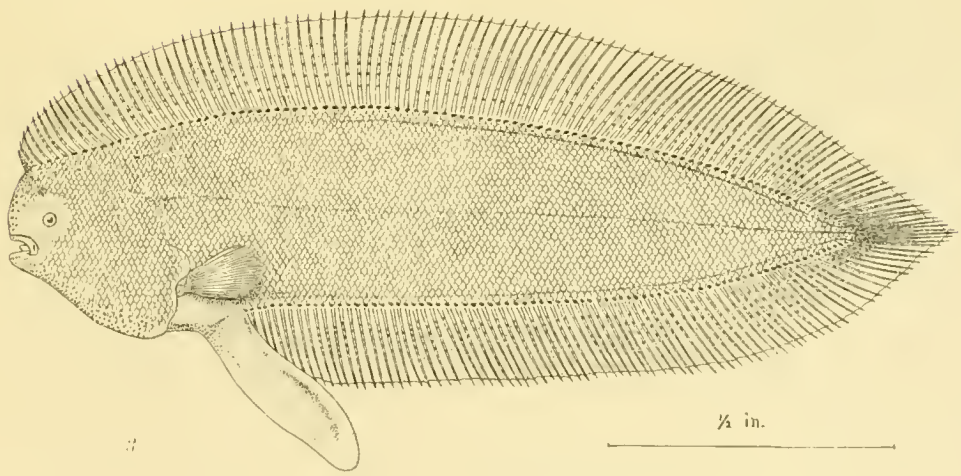

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PUBLICATIONS

OF THE

MUSEUM OF COMPARATIVE ZOÖLOGY

AT HARVARD COLLEGE.

There have been published of the BULLETIN Vols. I. to LII.; of the MEMOIRS, Vols. I. to XXIV., and also Vols. XXVI. to XXIX., XXXI. to XXXIII., XXXVII., XXXVIII., and XLI.

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